Woodward-Clyde Consultants

INTERIM REPORT ON PHASE II OF THE SUBSURFACE INVESTIGATION AT TANKS 19T AND 20T AT THE C6 FACILITY

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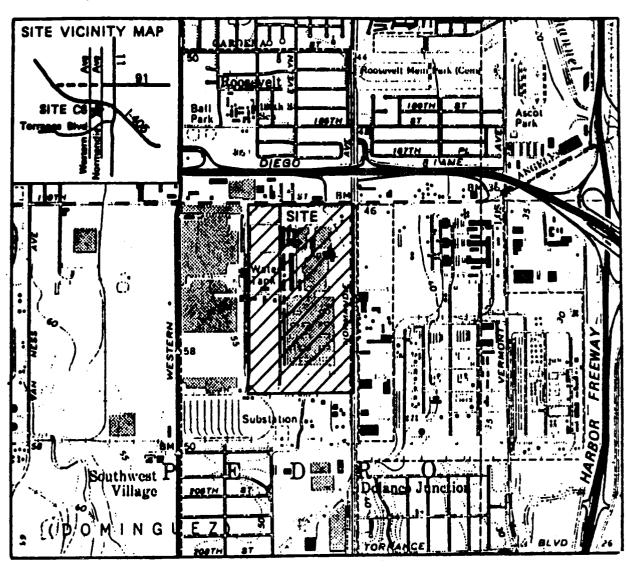
1.0 INTRODUCTION

The purpose of this report is to present the results of the Phase II subsurface investigation. This investigation was performed to evaluate the source of elevated concentrations of organic compounds in the soil and ground water near tanks 19T and 20T at Douglas Aircraft Company's C6 facility in Los Angeles, California. The facility location is shown on Figure 1.

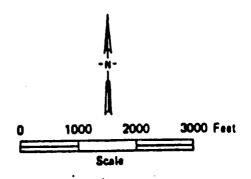
The results of Phase I of the investigation indicated the presence of petroleum hydrocarbons in the soil to a depth of 50 feet in the vicinity of tanks 19T and 20T. In addition, 1,1-dichloroethene, 1,1,1-trichloroethane, trichloroethene, and benzene had been detected in water samples collected from observation well WCC-1, which was installed at a location thought to be downgradient of the tanks. The locations of borings and wells installed during the Phase I work are shown on Figure 2.

2.0 OBJECTIVE

The objective of this phase of the investigation was to evaluate the source of organic compounds in the soil and ground water near tanks 19T and 20T.







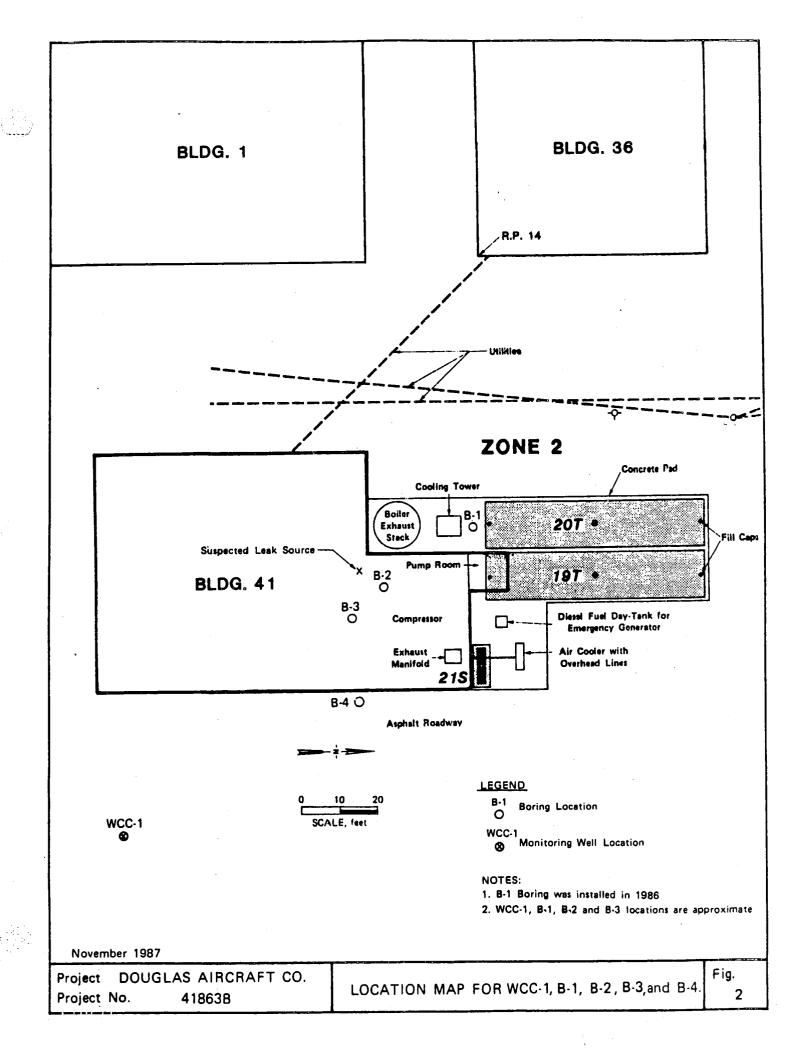
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Project No. 41863A

C6 FACILITY LOCATION MAP

Fig.

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3.0 DESCRIPTION OF THE FIELD PROGRAM

Phase II of the investigation was performed in the following manner. Three additional observation wells (WCC-2, WCC-3 and WCC-4) were installed at the locations shown on Figure 3. Details on the field program used during the installation of the wells are presented in Appendix A.

Well WCC-1 is located approximately 40 feet due east of Building 41, and was installed in March 1987. Well WCC-1 is downgradient with respect to the location of tank clusters 19T, 20T, and 15T to 18T (see Figure 3).

Well WCC-2 is situated between buildings 61 and 34. This well is considered to be the upgradient ground water observation well relative to the two tank clusters, and is approximately 400 feet northwest of tank cluster 15T to 18T.

Well WCC-3 is located at the northeast corner of Building 1, between the diesel tank cluster 19T, 20T, and the solvent tank cluster 15T to 18T. This well is also situated downgradient of solvent tanks 15T and 18T.

Well WCC-4 is approximately 100 feet southeast of Building 41, and is downgradient of tank clusters 19T, 20T, and 15T to 18T.

Boring B-4 was installed on May 26, 1987 by A & R Drilling Company (see Figure 2). This boring was installed to allow further evaluation of the vertical extent of petroleum hydrocarbons in the subsurface near tanks 19T and 20T. Borings B-1, B-2, and B-3 were installed during an earlier

evaluate whether organic compounds are present in the ground water at the site perimeter. A discussion on the optimum location for Well WCC-5 is presented in Section 6.0.

Ground surface elevations of observation wells WCC-1, -2, -3, and -4 were surveyed on 3 November 1987 by Rattray and Associates, Inc. of Santa Ana, California. The survey provided the ground water elevation data required to evaluate the direction of the ground water gradient.

4.0 RESULTS

4.1 Ground Water Elevations

Ground water elevation data collected on 6 November 1987 indicated that in the area defined by the four wells, the elevation of ground water from Mean Sea Level (MSL) varies from -21.41 to -21.94 feet. These elevations indicate that the water table is over 21 feet below MSL. The water levels from the deeper aquifers, are also below MSL. Water level information from 1983 indicates that the water levels in these deeper aquifers are at approximately -60 feet MSL (Los Angeles Flood Control District).

The low ground water levels found in the deep aquifers can be attributed to the reduced natural ground water recharge caused by urbanization of the Los Angeles Basin and the heavy use of ground water. Channelizing the Los Angeles and San Gabriel rivers also has significantly reduced recharge to the ground water system. The reduced recharge and heavy ground water extraction produce a ground water overdraft and a subsequent lowering of the water table. The ground water

phase of this investigation. Analytical data obtained from soil samples from these borings indicated that petroleum hydrocarbons were present to a depth of approximately 50 feet. The purpose of Boring B-4 was to evaluate how far below this 50-foot depth the hydrocarbons had penetrated. Boring B-4 was installed approximately 30 feet away from the suspected source of the release, and was slant drilled at an angle of 26 degrees from vertical, outside of the building. This boring had to be installed outside the building, because space restrictions prevented use of a large drill rig inside the building. The boring was terminated at a vertical depth of 54 feet.

Well logs from observation wells WCC-1, -2, -3, and -4 and Boring Logs for B-1, -2, -3, and -4 are presented in Appendix B.

On 30 October 1987, wells WCC-2, -3, and -4 were developed by Beylick Drilling Company of La Habra, California. The observation wells were developed by a surge block and sand bailer method, and pumped with a submersible pump until the extracted water was free of visible suspended material. Water samples were collected for chemical analysis for volatile organics (EPA 8240) and petroleum hydrocarbons (EPA 8015). The well development and water sampling methods used are discussed in Appendix A.

An additional observation well, WCC-5 will be located and installed within two weeks based on the estimated direction of the ground water gradient provided in this report. Well WCC-5 will be located along the eastern property line to

levels in the semi-perched aquifer beneath the facility may be influenced by the same factors as the deeper aquifers in the area.

4.2 Ground Water Gradient

The ground water gradient calculated from ground water elevations taken 6 November 1987 indicates a gradient sloping from the northwest to the southeast. Direction of ground water flow is illustrated on Figure 3. The ground water gradient was calculated through the use of gradient vectors between wells WCC-1, -2, -3, and -4. The ground water gradient illustrated in Figure 3 is based on data from wells WCC-1, -2, -3, and -4, and may not reflect ground water gradients at other areas at the C6 facility.

4.3 Well WCC-5 Location

The southeast gradient of ground water (discussed in Section 4.2) allows observation Well WCC-5 to be located along the property line, downgradient of the tank clusters. The proposed location of WCC-5 is shown on Figure 3. This observation well will be installed, developed, and sampled in the same manner as wells WCC-1, -2, -3, and -4. Water analysis results from Well WCC-5 will be used to assess whether organic compounds are present in the ground water at the site boundary.

4.4 Analytical Results of Wells WCC-1, -2, -3, and -4

Water samples were collected from observation wells WCC-1, WCC-2, -3, and -4 on 15 April and 2 November 1987. The samples were analyzed for volatile organic compounds (EPA 8240) and petroleum hydrocarbons (EPA 8015) by West Coast

Analytical Service, Inc. in Santa Fe Springs, California. Analytical results for the ground water samples are summarized in Table 1.

These analytical results show that the highest concentration of organic compounds was found in the sample collected from Well WCC-3, immediately downgradient of the tank cluster 15T to 18T. The concentration decreases as the downgradient distance from this area increases. The lower readings obtained from WCC-4 as compared to WCC-1 suggest that WCC-4 is closer to the edge of the plume than WCC-1. Well WCC-2, the upgradient well, has very low concentrations of 1,1-DCE, 1,1,1-TCA and TCE. Petroleum hydrocarbons were not detected in the water samples when analyzed by Method 8015. results indicate that the source of the organic compounds in the ground water was not the release from tanks 19T, 20T.

Soil samples were collected at depths of approximately 45, 55, 65, 75, and 80 feet from all three well locations for Organic Vapor Analyzer (OVA) field headspace measurements and possible laboratory analysis. Refer to Appendix A for sampling methodology. Elevated OVA headspace readings and chemical odors were noted during the installation of Well WCC-3. OVA measurements were recorded on the Boring Logs presented in Appendix B. The presence of odors and elevated OVA readings were not observed at wells WCC-1, WCC-2, and The 55 and 65 foot depth soil samples from Well WCC-3 were analyzed for the presence of volatile organics (EPA 8240) and petroleum hydrocarbons (EPA 8015). trations 1,1-dichloroethane (methylene chloride), of 1,1-dichloroethene (1,1-DCE), 4-methyl-2-pentanone (MIBK), 1,1,1-trichloroethane (1,1,1-TCA), and toluene were found in

TABLE 1 GROUND WATER ANALYTICAL RESULTS Concentrations (ug/l)

COMPOUNDS	WCC-1 3/27/87	WCC-1* 4/13/87	WCC-1 11/12/87	WCC-2 11/2/87	WCC-2 11/12/87	WCC-3 11/2/87	WCC-3 11/12/87	WCC-4 11/2/87	WCC-4 11/12/87
1,1-Dichloroethene (1,1-DCE)	2,800	3,700/2,500	3,000	5	2	38,000	88,000	360	1,200
1,1-Dichloroethane (1,1-DCA)	••	/	23				1,000		
1,1,1-Trichloroethane (1,1,1-TCA)	300	260/120	160	5		110,000	54,000	14	35
Trichloroethene (TCE)	4,600	5,500/3,600	5,200	14	4	10,000	11,000	700	690
4-Methyl-2-pentanone (MIBK)		/	••			54,000	70,000		
trans-1,2-dichloroethene (trans-1,2-DCE)		/	75 .				1,000	2	
Chloroform		/	39					2	
Toluene	••	/		6	1	80,000	140,000		
Benzene	85	110/	160						
Detection level (ug/l)	50	50/50	20	1	1	1,000	1,000	1	10

Duplicate sample also analyzed
 Not detected

the soil samples ranging from 8 to 590 ug/kg (ppb). Petroleum hydrocarbons were not found in the soil samples analyzed.

As a part of the underground tank management program at the C6 facility, soil borings were installed next to tanks and sumps, to identify past or current leakage of chemicals from these storage units. Borings were installed on 24 August 1987 adjacent to tanks 15T and 17T. Boring Logs for tanks 15T and 17T are presented in Appendix B. Analytical results obtained from soil samples collected from these borings are summarized in Table 2.

The results indicate the presence of organic compounds in the soil next to the tanks. Soil samples from the boring next to Tank 15T contained a variety of compounds, including some of those found in the ground water (1,1,1-TCA, MIBK, TCE, and toluene). Samples from the boring next to Tank 17T contained only MIBK from the variety of compounds found in the ground water.

Laboratory analytical results for water and soil samples, and copies of the chain-of-custody forms are presented in Appendix C.

4.5 Depth of Penetration of Petroleum Hydrocarbons

Boring B-4 was installed on May 26, 1987, and was terminated at a vertical depth of approximately 54 feet (slant depth of 60.5 feet, see Figure 2). Analysis of samples collected from the boring showed that the concentration of petroleum hydrocarbons decreased from 16,000 mg/kg to below detection between a depth of 50 and 54 feet. Table 3 summarizes the

TABLE 2

ANALYTICAL RESULTS FROM SOIL BORINGS 15TB AND 17TB

Concentration (mg/kg)

Compound	15T (20 feet)	17T (30 feet)
	4 000	010
2-Butanone (MEK)	1,800	810
1,1,1-TCA	38	
TCE	94	
Toluene	6,300	
Ethylbenzene	180	
Total xylenes	1,300	
4-methyl-2-pentanone (MIBK)		840

⁻⁻ Not detected

TABLE 3

ANALYTICAL RESULTS FROM BORING B-4

Sample Depth (ft)	Petroleum Hydrocarbons (mg/kg) ppm
13	ND
18	15,000
22	44,000
27	8,200
31	28,000
36	6,000
40	1,500
44	·
49	16,000
54	ND
Detection Limit	10

⁻⁻ Not analyzed

analytical data. Data from this boring indicated that the petroleum hydrocarbons have penetrated to a depth of approximately 50 feet.

5.0 CONCLUSIONS

Observation wells WCC-2, -3, and -4 were installed to depths of approximately 90 to 91 feet at the C6 Torrance facility. Soil borings B1, B2, B3, and B4 were installed to depths of 31 to 54 feet, adjacent to tanks 19T and 20T. Data obtained from these wells and borings indicate the following:

- The ground water gradient in the area under investigation slopes from the northwest to southeast (see Figure 3).
- 2. During installation of Well WCC-3, elevated OVA headspace readings and chemical odors were observed at depths from 55 to 90 feet. Low concentrations of organic compounds were detected in two soil samples analyzed from this boring. These low concentrations indicate that the compounds are probably present in the soil at this location as a result of diffusion of the compounds from the source(s) in the soil and/or ground water as opposed to a direct release.
- 3. Analytical results of water samples from wells WCC-1, -2, -3, and -4 do not indicate the presence of petroleum hydrocarbons. However, volatile organic compounds were found in the water samples. The distribution of concentrations seems to indicate a source of organic compounds originating near the tank cluster 15T through 18T. These tanks and associated piping tested tight during the tank testing program in 1986.
- 4. Ground water elevations from the shallow semi-perched aquifer ranged from -21.41 to -21.94 feet Mean Sea Level. The negative ground water elevations indicate that the ground water is below sea level.

5. Data obtained from observation wells and Boring B-4 indicate that the piping at tanks 19T and 20T is not the source of the organic compounds in the ground water. The area near tank cluster 15T through 18T appears to be a more likely source. In addition, the petroleum hydrocarbons do not appear to have penetrated greater than 50 feet below the surface, and are confined to the area inside Building 41.

6.0 RECOMMENDATIONS

Ground water elevations indicate a gradient to the southeast. Observation Well WCC-5 will be installed within two weeks downgradient along the eastern property line, as shown in Figure 3. This location would detect organic compounds if present in the ground water at the site perimeter. The location was selected based on the ground water gradient established from observation wells WCC-1, -2, -3, and -4, and assumes that hydrogeologic conditions are not significantly different in the proposed location of Well WCC-5.

Between one and three additional borings should be installed near tank cluster 15T to 18T, to evaluate the vertical and lateral distribution of the organic chemicals found in the soil at this location. The results obtained from these borings will help in evaluating whether these tanks are a source of the solvents found in the ground water. The location of the proposed borings will be selected following a review of facility operations at the tank cluster.

Remediation options for cleanup of the fuel oil under Building 41 are currently being evaluated. Options being evaluated include the No Action option and the use of a Vapor Extraction System (VES).

APPENDIX A FIELD PROCEDURES AND METHODOLOGY

(ABC/DAPPA)

APPENDIX A FIELD PROCEDURES AND METHODOLOGY

A.1 GENERAL INFORMATION

Drilling was performed by A & R Drilling, Inc. of Carson, California. Drilling began on 26 October 1987 and was completed on 30 October 1987. Monitoring wells were drilled using a CME 75 with 7-inch outside diameter (0.D.) and 10-inch O.D. hollow stem augers.

A.1.1 Monitoring Well Installation

Monitoring wells WCC-2, -3, and -4 were constructed of 4-inch, Schedule 40 PVC and set to a depth of about 90 to 91 feet. The monitoring wells were installed by drilling a 90-foot deep pilot hole with the 7-inch O.D. hollow stem augers used for soil sampling. Upon removal of the 7-inch hollow stem auger from the hole, 10-inch O.D. hollow stem augers were used to ream the pilot hole to a 10-inch diameter. A wooden plug was placed in the lead cutting auger to prevent cuttings and water from entering the inside of the auger. Municipal water was added to the inside of augers as drilling progressed through the water table to offset the hydrostatic pressure of the fine grained flowing sands outside the augers. Two attempts were made to install Well WCC-3 without the use of water, but the bottom 3 to 5 feet of the auger "sanded-in" immediately after knocking out the wooden plug. The "sanding-in" of the augers prevented the wells from being properly constructed. Water had to be used to ensure proper well construction of WCC-2, -3, and

-4. The amounts of city water used at each well was noted on the well log forms and samples of city water were collected for possible laboratory analysis.

A.1.2 Well Construction

The monitoring wells were constructed of 4-inch O.D. Schedule 40 PVC flush-threaded blank pipe, and screened with .010-inch slot. Adhesives were not used. Wells were installed with 70 feet of blank casing and 20 feet of screen. The well screen was filter packed using a 1-1/4 inch diameter tremie pipe, to reduce the possibility of sand bridging inside the augers. A filter pack material of Monterey #0/30 sand was selected, based on a field sieve analysis. Filter pack analysis is discussed in Section A.4. The filter pack was placed from the well bottom to about 5 feet above the top of the well screen from 65 to 90 feet.

A five-foot thick bentonite pellet plug was placed above the filter pack, at depths from about 60 to 65 feet, to prevent movement of fluids through the annular space. In addition, bentonite grout was placed at depths from approximately 8 to 60 feet below ground surface. A concrete plug was placed from approximately 8 feet to the surface, to prevent seepage of surface fluids into the well. The top of the well casings were completed 3 to 6 inches below grade and protected with a steel traffic-rated Christy box.

Appendix B presents the Boring Logs and graphic well construction details.

A.1.3 <u>Drilling Residuals</u>

Drill cuttings from each boring were placed in DOT Class 17H 55-gallon drums, and the contents of the drums were labeled using an identification label and permanent ink marker. The drums were sealed and left adjacent to the boring locations. Douglas Aircraft was advised of the locations and contents of the drums, and the need for proper management of the drill cuttings.

A.2 SOIL SAMPLING

Subsurface soil samples were collected at approximately 45, 55, 65, 75, and 80 feet below ground surface. Soil samples were collected for Organic Vapor Analyzer (OVA) headspace measurements, and for laboratory analyses. Soil samples were collected using a California modified sampler. The California modified sampler holds four brass tubes, and is 18 inches in length. Soil sample depths and OVA headspace measurements are shown on the Boring Logs in Appendix B.

A.2.1 OVA Headspace Measurements

Field OVA headspace measurements were taken from one of the soil samples collected at each sampling depth. This procedure was conducted by extruding the contents of one brass tube into a one pint glass jar. The jar's lid has a 1/4-inch diameter hole, which was sealed with duct tape. Approximately 10 minutes was allowed for organic vapors from the soil to reach equilibrium inside the jar. An OVA probe was then inserted through the hole in the jar, and the vapor concentration was measured (in ppm).

A.2.2 Soil Sample Preparation

One to two tubes from the soil sampler were prepared for laboratory analysis. The ends of the tubes were covered with aluminum foil, plastic end caps, and sealed with electrical tape. Soil samples were labeled with the following information:

- · Project number
- Project name
- Boring number
- Sample number
- Soil depth
- Date
- · Person collecting sample

The soil samples were then sealed in Ziploc plastic bags and placed on ice in an ice chest. All soil samples were delivered to West Coast Analytical Service, Inc. in Santa Fe Springs for analysis. Chain-of-custody procedures, includidentification of sample labels and the use chain-of-custody forms, were used for tracking the collection and shipment of soil samples. Copies of the chain-of-custody forms are presented in Appendix C.

A.3 FIELD OBSERVATIONS

Observations made by Woodward-Clyde Consultants personnel during the drilling and sampling operations were recorded on Boring Logs, as presented in Appendix B. These observations related to visual soil classifications, geologic and

stratigraphic comments, observation well construction details, sampling efforts, OVA measurements, and other pertinent information.

A.4 FILTER PACK ANALYSIS

Selection of the proper filter pack material and well screen slot size is essential in collecting a sediment-free or low sediment content water sample. In monitoring wells WCC-2, -3, and -4 soil samples were collected from 75 or 80 feet below grade for sieve analysis. Filter pack design calculations were made based on the grain size distribution obtained from these soil samples.

Soil analyses were conducted in the field by collecting a soil sample from below the water table with a California soil sample was heated with a modified sampler. The portable propane stove to evaporate all water from the soil. When the sample was dried, it was weighed on a scale to the nearest gram. The soil sample was then poured into the top of eight sieves and shaken for approximately 5 minutes. sieve sizes used in the analysis are shown in Figure A-1. The cumulative percent of the soil sample retained in each sieve was weighed and plotted on a sand analysis curve. is the sand analysis curve that graphically characterizes the grain size distribution of the soil. Sand analysis curves for wells WCC-2, -3, and -4 are illustrated in Figures A-1, A-2, and A-3, respectively.

Calculating the filter pack size was done by multiplying the 50 percent retained size of the formation sample by 2 (Johnson 1986). This value was plotted on the sand analysis

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70	14 · .052 18 · .040 20 · .033 30 · .023 40 · .016 50 · .012 54 · 70 80 · .007 87 · 100
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ŀ	O. · OPENIA (in.)		VEIGHT		RET	AINI %}	ED	"	A881 (%			_		<u>`</u>					_			- .004				
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F	100004 Bottom Pan	7	226 278	\mp		80 99		╁	<u>- 2</u> (+	_														
Ł	Sollow Lau		2/0			<u></u>																				

curve. Through this point on the filter pack curve, a smooth curve was drawn representing material with a uniformity coefficient of 2 to 3. The uniformity coefficient was calculated by dividing the 40 percent retained value by the 90 percent value, as shown in the equation below.

Uniformity Coefficient (U.C.) =
$$\frac{U.C.40}{U.C.90}$$

This filter pack curve defined the ideal filter pack required to prevent the entrance of fine silts, sands and clays into the monitoring wells. A ready made filter pack material was then selected that best matched the calculated filter pack curve, since custom made filter pack materials were not readily available. The sand analysis curves for wells WCC-2, -3, and -4 were similar and the soils were classified as fine-grained sands. The filter pack selected for the three monitoring wells was a Monterey #0/30 sand. The sand analysis curve for Monterey #0/30 is shown on Figure A-4.

A.5 WELL DEVELOPMENT AND WATER SAMPLING

Monitoring wells WCC-2, -3, and -4 were developed on 30 October 1987 by Beylick Drilling Company of La Habra, California. The wells were developed by a sand bailer and surge block method for 45 to 60 minutes and then pumped with a submersible pump. Wells WCC-3 and WCC-4 had 165 gallons of water removed during development. Well WCC-2 had 225 gallons removed during development. Table A-1 presents the development times and the ground water volumes removed.

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TABLE A-1
WELL DEVELOPMENT SUMMARY

Well No.	Sand Bailer and Surge Block Time (min)	Sand Bailer Volume Removed (gal)	Pumping Time (min)	Pumping Volume Removed (gal)	Total Volume Removed (gal)	Comments
WCC-2	60	80	35	145	225	Water clear after pumping 90 gallons
MCC-3	45	15	40	150	165	Water clear after pumping 95 gallons
WCC-4	45	40	35	125	165	Water clear after pumping 75 gallons

The last 50 to 55 gallons removed from the three monitoring wells was observed to be sediment free.

Water removed from the wells during development was contained and sealed in DOT Class 17E 55-gallon drums adjacent to the wells. The drums were labeled for contents, date, and well number.

Observation wells WCC-2, 3, and 4 were sampled on 2 November 1987. Each observation well had a minimum of three well casing volumes removed before a ground water sample was collected. Electrical Conductivity (EC) and temperature was recorded from each five gallons of ground water removed from the well. Stabilized EC and temperature values indicated that ground water from the aquifer formation was being extracted from the well. Table A-2 presents EC, temperature, and ground water volume data recorded during water sampling. The water removed from the wells is being stored on-site prior to disposal.

Monitoring wells were bailed with a PVC 3-1/2 inch PVC bailer. This bailer was washed with Liquinox detergent and rinsed with deionized water between usage in each well. The 3-1/2 inch diameter PVC bailer was only used for well volume removal and was not used for water sampling. After a minimum of three well volumes had been removed, and EC and temperature stabilized, a water sample was collected using a clean, 2-inch diameter Teflon bailer. Each well was sampled with a different 2-inch bailer to minimize the potential for cross-contamination.

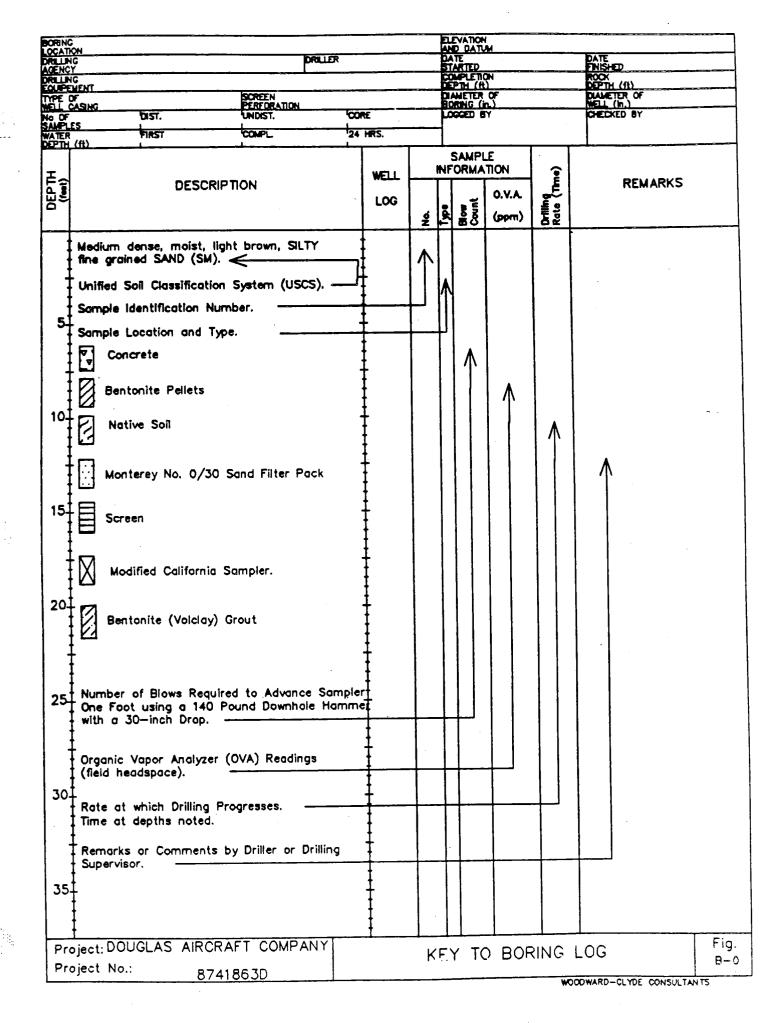
TABLE A-2
WATER SAMPLING ELECTRICAL CONDUCTIVITY AND TEMPERATURE DATA

Well No.	Sample Interval (gal)	Electrical Conductivity EC - umhos	Temperature C'
MCC-5	0-5	750	22.5
	5-10	1,000	22.5
	10-15	1,000	22.5
	15-20	1,000	22.5
	20-25	1,000	22.5
	25-30	1,000	22.5
	30-35	1,000	22.5
WCC-3	· 0 ~ 5	2,250	23.0
	5-10	2,100	23.0
	10-15	1,950	22.5
	15-20	2,000	22.5
	20-25	2,000	22.5
	25-30	1,900	22.5
	30-35	1,800	22.5
WCC-4	0-5	1,000	25.0
	5-10	1,050	22.5
	10-15	1,050	22.5
	15-20	1,050	22.5
	20-25	1,050	22.5
	25-30	1,050	22.5
	30-35	1,050	22.5

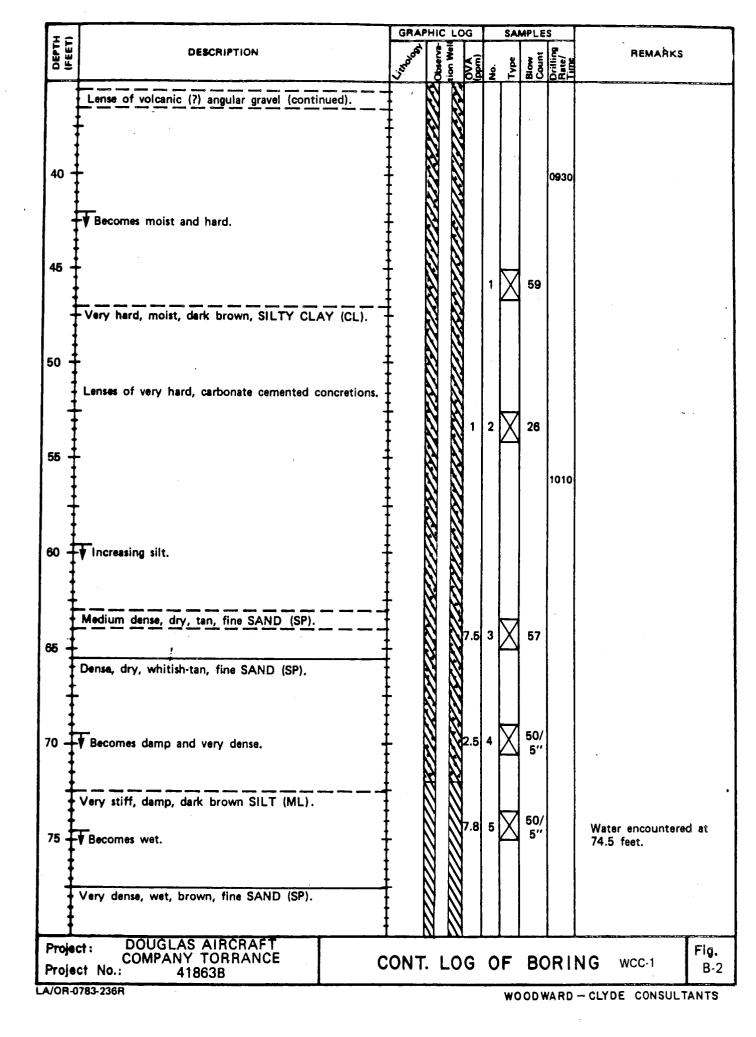
NOTE: Water samples collected 2 November 1987

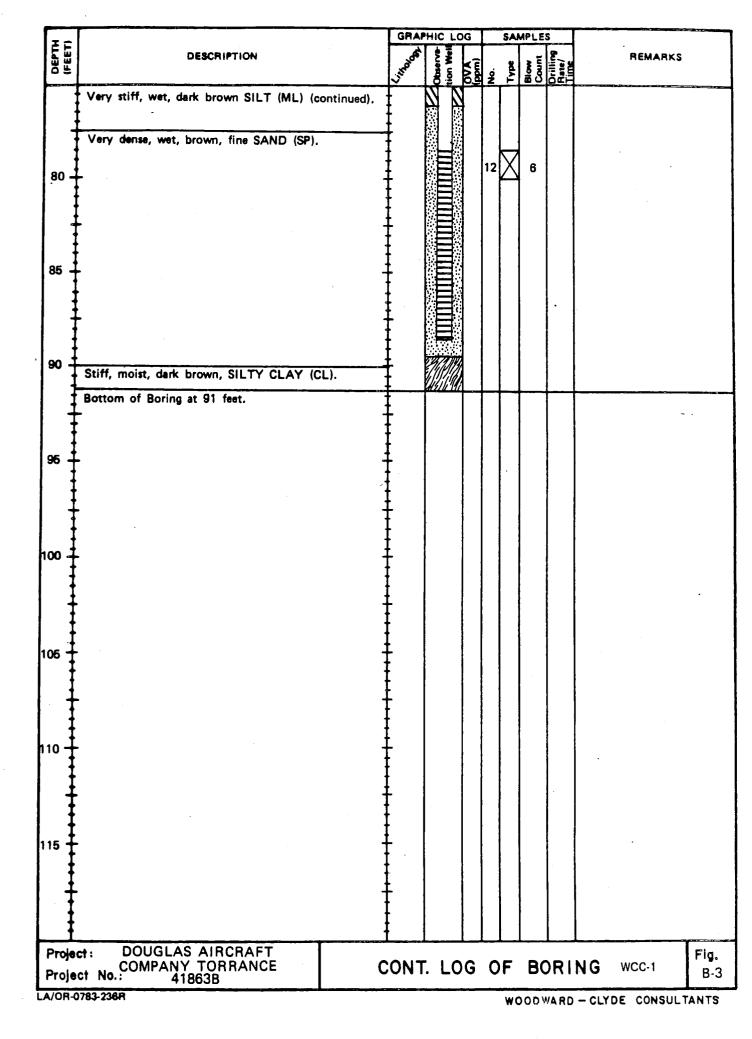
APPENDIX B BORINGS LOGS

(ABC/DAPPA)



SOA!	WCC-1				AND	AI	TUM	То	p of	Casing	50.7) Feet	
<u>LOCA</u>	TION TOO I	LLER	Jame	s	STA	TE	<u>, 57.</u> D		5-87	DAT	SHED	3-26-8	37
AGEN DAIL	Mobile Drill B-61, 10-inch O.D.,	H.S.A.			SOM DEP	LE	TIO	1	91	POC	K THIET)		
DIAM	TER AND TYPE 2 inch Plastic Flush Threaded				OF S	NO.	PLES	IDIE	Ų	UND	IST _	COME	-
OF W	OF . O2 Slot					ATE	A	FIR	ST 74	.5 CON	PL_	724 HM	8 _
TYPE	OF No. 12 Silica Sand	· · · · · ·			LOG						CKED		
POSK	OF Bentonite Pellet Plug and Benton	ite Gro	ut		7	S.	Do	nald	son		В.	Jacobs]
SEAL	Deritorities - times -						SAN	PLE	S				
DEPTH (FEET)	DESCRIPTION		Jistro lost	Observa-		į	*	Count	Drilling Rese/ Time		REM	ARKS	
	Asphalt	,	Ť	Ħ	-	Ī		= *-	0905			und OV = 1-2 p	
6-	Damp, reddish-brown, SILTY SAND (SP) w clay and gravel. Becomes black	vitn 4		11/18/01						·	,	•	•
	Becomes reddish brown, no gravel.												
10 -	▼ Becomes medium brown.	<u>.</u>		THE STATE OF									
15 -	CLAYEY SAND (SC).			MARKETT					0915		1		
20 -													
25	Stiff, damp, medium brown, CLAYEY SILT with some fine sand.	(ML)	+										
30 -	▼ Becomes hard with more clay.		+++++++++++++++++++++++++++++++++++++++	CHILLIAN					092	0			
35 -	Lense of volcanic (?) angular gravel.		-										F:-
Pro	DOUGLAS AIRCRAFT COMPANY TORRANCE				LO	G	٥F		30R	ING	WC	C-1	Fig. B-1
Pro	oject No.: 41863B					•							
	R-0783-235R						٧	v o o	DWA	RD -CL	YDE C	ONSUL	TANTS





RING WCC-2 See Figure 2				VATION	To	p of	casing © 50.59 ft.
ENCY / C IV Diming, into:	M. Smi	th	DAT	E RTED	10-2	3-87	DATE 10-28-87
LING CME 75, 10—inch H.S.A.				PLETION TH. (ft)	9	0.6	ROOK
TO THE STATE OF TH	0 Slot		BOR	HETER C	<u> </u>	10	DIAMETER OF 4
OF DIST UNDIST. 5 CO		-	100	CED BY			B. Jacobs
TER FIRST 73 COMPL _ '24	HRS. 71	.1		п	. Rey	=5 	B. Udcobs
DESCRIPTION	roc Mett		NFO	≥	O.V.A.	Drilling Rate (Time)	REMARKS
Asphalt Medium stiff, very moist, dark yellowish brown, SANDY CLAY (CL). Becomes very dark grayish brown. Color change to yellowish brown. Becomes stiffer less moisture, SANDY CLAY (CL).	**************************************	ØN	130	8 50	(meq)	1306	Background OVA reading = 5 ppm
Continued SANDY CLAY (CL). Less stiff, more moist.						1317	-
Grades to SILTY CLAY (CL). Medium stiff, very moist, olive brown, SILTY CLAY.						1319	
25						1323	
50						1327	
35						1333	
Project: DOUGLAS AIRCRAFT COMPANY		1.0	20	٥٦		:NI.^	WCC-2 Fig
Project No.		L	JG	U٢	BOR	IIVG	B-1
8741863D							DOWARD-CLYDE CONSULTANTS

DEPTH (bet)	DESCRIPTION	roc Mett	ó	Type	Blow	O.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).							
45	Dense, maist, alive brown, fine grained, SILTY SAND (SM), with shells.		1	X	34	5	1342	
50							1357	
55	Very dense, damp, strong brown, fine grained SAND (SP) to SILTY SAND (SM), iron oxide staining.		2	X	60	5	1402	
60							1423	,
65	Dense, malst, olive, fine grained SILTY SAND (SM), some iron oxide stains.		3	X	42	6	1433	
70							1500	√7 Water at 73 famt
75	Becomes wet. Very dense, wet, olive brown, fine grained, SILTY SAND (SM).		4	\\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	68	6	1512	∑ Water at 73 feet.
80							1544	
i .	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 87418630	CONT	. L)(G OF	BOF		WCC-2 Fig. B-1-2

DEPTH (Pect)	DESCRIPTION	WELL	ŏ.	150	Blow Count	O.V.A. (ppm)	Drilling Rate (T.)	REMARKS
	(continued) Very dense, wet, olive, fine grained to very fine grained SILTY SAND (SM), micaceous, with some clay interbedding and iron oxide staining.		5		50/ 3"	5	1600	
90	Battom of Boring at 90.5 feet.			Н				Note: 48 college of city
95								Note: 48 gallons of city water used to offset hydrostatic head of flowing sands during well installation.
100								
105		•						
110		† † † †						
115		† † † † †						
120		‡ + + + +						
125		+						
	ject: DOUGLAS AIRCRAFT COMPANY	CONT	. L()G	OF	BOR	ING	WCC-2 Fig. B-1-3
Pro	ject No.: 8741863D						WO	ODWARD-CLYDE CONSULTANTS

OCINC WCC-3 See Figure 2		EL	EVATION O DATU	u Top	p of (Casing 5 51.19 ft.
RELING A & R Drilling, Inc.	M. Smi	th 🖁	ARTED	10-26	-87	DATE 10-26-87
CME 75, 10-inch H.S.A.		Z D	MPLETIO PTH (fl)	۹ 9	2	ROCK
The Visit Control of the Control of	10 Slot	DI.	AMETER KING (in	3 1	0	DIAMETER OF 4
ALPI FS	ORE		ICCED BY	l. Reye	s	B. Jacobs
DESCRIPTION	FOC		SAMPL ORMAT		Drilling Rate (Time)	REMARKS
Asphalt Damp, very dark grayish brown, fine grained SiLTY SAND (SM) with small gravel. Soft, very moist, dark gray to black SiLTY CLAY (CL). Becomes less moist, dark yellowish brown, stiff. Continued SiLTY CLAY (CL). Becomes more stiff, no detectable ador. Dense, moist, yellowish brown, CLAYEY SAND SANDY CLAY (SC-CL). Grades to SiLTY CLAY (CL). Stiff, moist, dark yellowish brown SiLTY CLAY. 25 Lens of volcanic ash.					0855 0857	Background OVA reading = 4-6 ppm No odor. No odor.
35					0913	
Project: DOUGLAS AIRCRAFT COMPANY Project No.: 8741863D		LOC	G OF	BORI	NG	WCC-3 Fig.

DEPTH (Text)	DESCRIPTION	WELL	ò	Type	Blow	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	(continued) Stiff, moist, olive brown, SILTY CLAY (CL).						0921	
45	Lens of stiff, moist, clive, SANDY SILT (ML), micaceous with decomposed pieces of roots.		1	X	25	3 0	0924	Earthy odor.
50	Clay becomes more stiff, interbedded with lenses of dense, moist, yellowish brown,					5	0937	
55	medium grained SILTY SAND (SM) with shells, partially cemented and crystalized calcite.		2	X	30	570	0945	Moderate chemical odor.
60	Dense, moist, yellowish brown to alive gray, very fine grained SILTY SAND to SAND (SM-SP), micaceous.						1005	Easier drilling.
65	(SM-SF), Introduced a.		3	X	46	440	1015	Moderate to strong chemical odor.
70	Very stiff, very moist, olive brown, SANDY SILT (ML), micaceous with iron oxide stains.		4	X	35	+100	0 1035	Very easy drilling. Strong chemical odor.
75	Becomes wet. Very dense, wet, olive brown fine grained SANI (SP) to SILTY SAND (SM).		5	X	59	+100	0 1047	▼ Water at 73.5 feet. Strong chemical odor.
80-	Becomes medium grained.		6	\ \ \ \	N.R	+100	0 1112	
	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 8741863D	CONT	. L	00	OF	BOF		WCC-3 Fig. B-2- ODWARD-CLYDE CONSULTANTS

0€РТН (№ €)	DESCRIPTION	WELL.	óN	Type	Blow	O.V.A.	Drilling Rote (T.)	REMARKS
85- 90-	(continued) Very dense, saturated, olive brown, fine to medium grained SAND (SP—SM) with some silt.						1205	Moderate to strong chemical odor.
	· ·						1545	
95	Bottom of Boring at 92.0 feet.							Note: Used 59 gallons of city water to offset hydrostatic head of flowing sands during well installation.
	•	Ŧ Ŧ			·			
100		+						
105		+++++++++++++++++++++++++++++++++++++++						
110-		+						
115	· · · · · · · · · · · · · · · · · · ·	† † †						
120-		† †						/
125		+ .				·		
	oject: DOUGLAS AIRCRAFT COMPANY oject No.: 8741863D	CONI	. L	00	OF	BOF	RING	WCC-3 Fig. B-2-3

ORING OCATION RELLING			WCC-			Figure				AND DIEV	ATION DATIAM				ing • 4	9.69 f	t.
ŒNCY		& R				DRELL		l. Sm	<u>ith</u>	TATE TAKE			7-87	_6)-27-	0/
RELING OUPENEN					10-in					- EP	TEJION	9	1.5		PTH (ft)		
YPE OF	_G 4°		40 F	PVC	SCREEN PERFORATI	ON		Slot		1000			10		METER OF	4	
OF AMPLES ATER EPTH (11)		DIST.	7	<u>-</u> 5	COMPL	8	24		- 1.6	- 000	ED BY H.	Rey	es		B. J	lacobs	
OEP TH (feet)			DESC	RIPTI	ON			WELL	<u>\$</u>		MPLE		Dritting Rate (Time)		REM/	· · · · · ·	
Mo SA	ist, do	rk yella	owish i	gree	CLAY W	CLĀY (ā.).		10.0					rea	ekground ding =	OVA 4-6 p	ppm
LL_		101 40	C AID		FT CON	40 A NI	71						RING		NCC-4		Fig

DEPTH (Fee)	DESCRIPTION	WELL	No	Type	Blow	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	Very stiff, organic roots and plant detritus with arangish fron exide staining.		1	X	18	8	1345	No odor.
55	Occasional fossiliferous gravel.		2	X	23	8	1350	No odor.
65	Hard, light alive brown, fine SANDY SILT to SILTY fine SAND (SM).		3		43	5	142	5 No odor.
76-	Becomes wet. Hard, damp, light alive brown, SILTY CLAY (CL) with iron axide staining.		4		42	2 7		∑ Water at 75 feet.
	Very dense, light olive brown, fine grained SAND (SP) with little silt. 2 inch layer of CLAY (CL).		5	5	4!	5 8	153	No odor.
	oject: DOUGLAS AIRCRAFT COMPANY oje No.: 87418630	CON	T. L	.0	G 0	F BO		WCC-4 Fig. B-3-2 MOODWARD-CLYDE CONSULTANTS

3	DESCRIPTION	LOG	ģ	Type	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
85	(continued) Very dense, wet, light olive brown, fine grained SAND (SP) with little silt.							
90	Moist, light olive brown, SILTY CLAY (ML-CL).		6	X	N.R.	8	1700	No odor.
1	Bottom of Boring at 91.5 feet.	1000		r	ļ			Note: 45 gallons of city water used to offset hydro
95		+						static head of flowing sands during well instal- lation.
00		+						
05		+						
110-	^	+						
15		‡ ‡						
120		+						
125		+						
Pr	oject: DOUGLAS AIRCRAFT COMPANY	CON	T. 1	_0	G D	F PO	RING	WCC-4 Fig

NG See Location Map		ANI	VATION DATU	 L.	N	lot Available	
LING A & R Drilling Inc DRILLER M Rom	ero	DA	TE ARTED	8-24		DATE FINISHED 8-24-	87
CME 45, 8-inch O.D., H.S.A.		CO	MPLETIC	ж У	41	ROCK — DEPTH (ft) —	
CASING N/A SCREEN N/A PERFORATION N/A		DIA	METER RING (ir	OF ال	8	DIAMETER OF	
DIST UNDIST. Q CORE	_	Loc	CCED 8	Y		CHECKED BY	
PLES FIRST _ COMPL _ 24 HRS.	_	7	۲.	Glaesr	man	M. Razmdjo	00
H (ft)			SAMPL	E			
WELL	<u> </u>	INF	ORMA	TION	ê	BEMARKS	
DESCRIPTION WELL LOG	1	i i	ابد	0.V.A.	(Time)	REMARKS	
	ģ	ᇕ	Blow	(ppm)	Drillin Rate		
Asphalt covering.	1	딙				5 6 2 - 1 -	
Medium dense, damp, yellowish brown, SILTY fine to medium grained SAND (SM), micaceous, 4—inch CLAYEY layer near surface. (FILL)	1	X	9	10	1230	Definite odor.	
↓ ` / 							
Loose, damp, yellowish brown, fine to medium grained SAND (SP—SM), with some SILT,		Ц					
micaceous, (FILL).	2	X	2	52	1240	Strong odor.	
‡ ‡	1	H					
<u></u>		$ \ $					
‡							
<u>.</u> ‡	1	Ц					
Color changing to gray with some	3	X	2	600	1250	Strong odor.	٠.
yellowish brown mixed in. Less silt.		H					
micaceous (SP).(FILL)							
Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous.	1						
1, ,		Ц					
5 1	4	M	11	>1000	1300	Strong odor.	
1		H		,			
11							
Stiff, moist, olive brown, SANDY SILT							
(ML), micaceous.		Ц					
P †	5	M	9	>1000	1310	Strong odor.	
1		H					
II							
Stiff to very stiff, moist, olive brown, CLAYEY							
SILT (ML).		Ц					
5 ‡	6	M	14	>1000	1320	Strong odor.	
†		H					
†	1						
† .							
‡					1		
p‡	7	∇	20	>1000	1335	Strong odor.	
‡		A				Ĭ	
‡							
‡ ‡]						
‡					1		
5 to grained SAND (NI)	8	∇	10	>1000	1345	Strong odor.	
With some fine grained SAND (ML).	~	\triangle	`			.	
‡					1		
- DOLIOLAS AIRODAST COMPANIAL		<u>-</u>		BOR	INIC	15TB	Fig.
-plect: DOUGLAS AIRCRAFT COMPANT		11 '	(1 -	- L 1 L	11/11/-	1318	-
roject: DOUGLAS AIRCRAFT COMPANY roject No.: 8741863C	L	JG	OF	BOIL	IING	1310	B-4-1

DEPTH (feet)	DESCRIPTION	WELL	ó	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)		REMARKS	
40-	Stiff, moist, olive brown, CLAYEY SILT (ML), micaceous.		9	X			1400	Strong	odor.	
	Bottom of Boring at 41 feet.								· · · · · · · · · · · · · · · · · · ·	
45										
50		- - - - -			_					
	<u> </u>									
55										* .
60		† †								
	•	† † †						-		
65		<u> </u>								
		† †								
70										
									,	
75		<u> </u>								·
80		‡ ‡								
	ject: DOUGLAS AIRCRAFT COMPANY	2017					1010	1570		Fig.
	ject No.: 8741863C	CONT	. L()G 	UF.	ROK		15TB	YDE CONSULTAN	B-4-2

BORIN	Ğ.		See	ocation	Мар			ELE	VATION DATU	<u> </u>	1	Not Available	,
DRILLUI AGENO	NG A	& R Dr			DRILLER	M. Ron	iero		TE VRTED	8-24	-87	DATE FINISHED 8-24-	-87
DRILLI					O.D.,H.			COL	MPLETIC	W	41	ROCK DEPTH (ft)	
TYPE	OF CASING	N/A	· · · · ·	SCREEN PERFORATI		N/A		DIA	METER RING (in	OF	8	DIAMETER OF N	A
No OF SAMPL	CASING	DIST.	_	UNDIST.	9	CORE	_	Ľŏ	CED B	Y		CHECKED BY	
AVA TE H		FIRST	-	COMPL		24 HRS.	_	1	Ρ.	Glaesr	nan	M. Razmdj	00
H	(1t)			- !		'	T	- 	AMPL	.E		- 1 ·	
I						WELL	1		ORMA		્ર		
DEPTH (feet)		DE	SCRIPT	NOF				П		0.V.A.	Drilling Rate (TIme)	REMARKS	
E P						LOG	,	امًا	Blow		e i		
							ģ	٤	ಹೆರಿ	(ppm)	물&		
	Asphalt of Medium of fine to medium	overing. lense, moi ledium gro	st, yello ined S	owish bro AND (SM)	wn, SILTY , micaceo	us.	1	X	11	75	1500	Little odor.	
5-	Stiff to ve			Jawish h		iny †	2	X	2	200	1510	Sample was between tank backfill and no material. One edge sample included no material, SANDY SI	atural of tural
10-	SILT (ML)	, micaceo	us.	SHOWISH D	rown, on		3	X	16	30	1515	No odor.	٠.
15-	·				·	† † † † †	4	X	12	45	1530	Slight odor.	
20-						† † † †	5	X	17	60	1540	Slight odor.	
25-						† † † † †	6	X	17	950	1545	Definite odor.	
30-		ve brown,	CLAYE	' SILT lay	ær (ML).	† † † † †	7	X	18	>1000	1600	Strang odar.	
35-						† † † †	8	X	16	>1000	1610		
Pro	ject: DOU	GLAS AI	RCRA	T COM	PANY			<u> </u>	~	D 0 0 1	NIO.	1770	Fig.
	ject. Doc						L(JG	UF	BORI	NG	17TB	B-5-1
, , ,	,,600 140		87418	563C							unc	L DOWARD-CLYDE CONSULTAN	

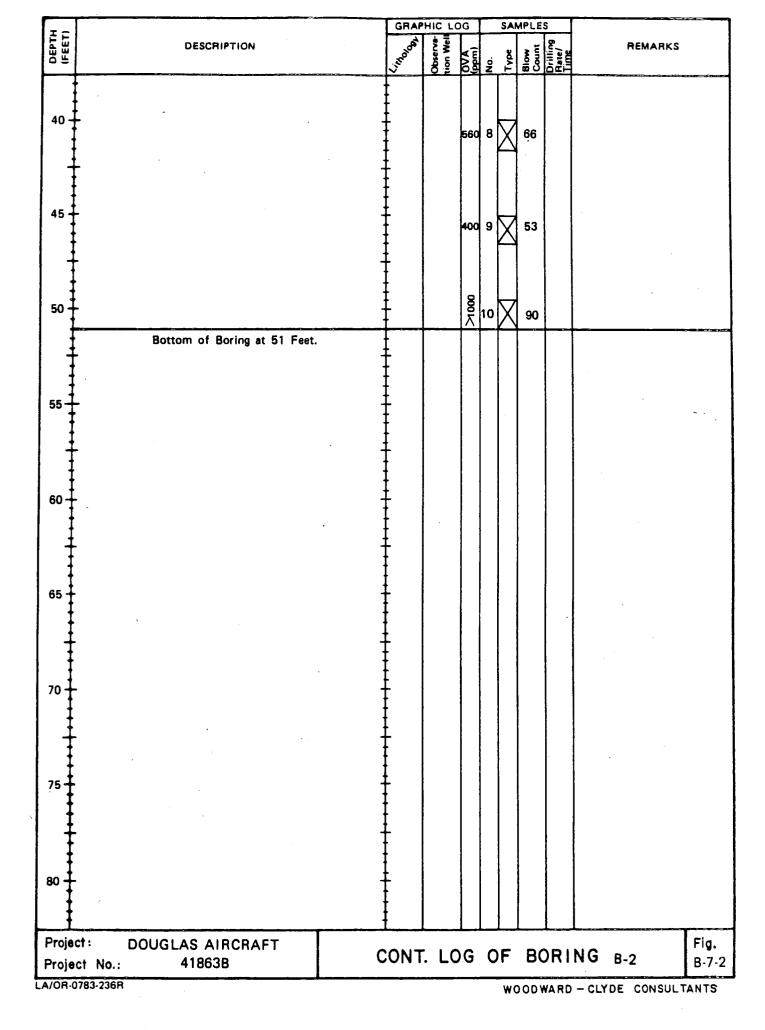
1 1 1 1

DEPTH (feet)	DESCRIPTION	WELL LOG	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)		REMARKS	5
40-	Very stiff, moist, olive brown, CLAYEY SILT (ML), little mica.	† †	9	X	26	>1000	1620			
	Bottom of Boring at 41 feet.	+							Vertical	boring.
45-		+								
50-		+ + + + + + + + + + + + + + + + + + + +								
55-		† † †								÷ .
60-		+		-						
65-		† † †								
70-		† † † †								
75		† † † †								
80	‡ ‡	† † †								
	oject: DOUGLAS AIRCRAFT COMPANY	CONT	. L	00	G OF	BOF	RING	177	В	Fig. B -5-2
۲۲	oject No.: 8741863C					<u> </u>	W	OODWARD-	CLYDE CONSUL	

LOCA	NG B-1 Tanks T-19 and T-20			ELE	VAT	ION	4				· ·
DAIL	LING Detum Exploration DRILLER	Ceith		DAT				1 1986	PINISHE	4 April	1986
	ING MENT Mobile 8-53, 9.5 Hollow Stem Auger			COM	PLE	TIO		50	ROCK DEPTH(F	T) —	
DIAM	ETER AND TYPE ELL CASING None installed	····		OF S	NO		TOIS	Ť	UNDIST	COR	Ē
TYPE	OF Not Applicable	-		W	ATI		FIR	ST_	COMPL.	24 F	AS.
TYPE	OF PERFORATION No. 60 Sand (85%) / Bentonite Flour	(15%)				O BY			CHECKE	D BY:	··-
TYPE SEAL				1		М.	Leac	h	Ε	3. Jacobs	
		GRAPH	IC L	.og		SAN	MPLE	S		······	\\\-\\-\
DEPTH (FEET)	DESCRIPTION	. sk	0V	(A)			_ =	٤ _ ع	RE	MARKS	
9 7		JEGE S		Back gn'd	į	Type	8 3	Orilling Tente/ Time			
	Aspelt	1 1			Ť						
	Rust colored, SILTY SAND (SM)	‡	i								
	Medium stiff, moist, dark brown, SANDY CLAY	1				_]					
		t la	0.0		1	\bigvee	6 4				
5		Į				4	3				
	Becomes very moist	<u>†</u>						. 1			
}		i l									
	-	!									
- 1		‡ 3	10		2	\bigvee	15 22				
10	Becoming light reddish brown and hard	‡				\hookrightarrow	35				
1	· ·	1						}			٠.
#		‡]	•		
- ‡	• ·	‡			İ						
· 🖠	·	1 3	34		3	∇	6 12				
15	Becoming light brown and very stiff	£ °	, -		Ĭ	\triangle	16				,
· I	The second of th	ŧ l									
ł		<u> </u>									
+	Medium dense, moist, light brown, CLAYEY, fine-	†									
t	grained SAND (SC)	<u> </u>	00		4	\square	11 8				
20 ‡		<u> </u>	00			\triangle	13	1			
1	Becoming lighter brown and drier	‡									
ŧ		ł I	i								
+	· · · · · · · · · · · · · · · · · · ·	!	1					1			
ł		t I.			_ ا	∇	8 16	1 1			
25		{ °	50		5	\triangle	18				
23 I	Very stiff, moist, light brown, SANDY CLAY (CL)	∃ .						1			
Ŧ		i l									
Ŧ	·	†									
ł		† ₄	15		6	X	8 15	1			
30 I		ŧΙ				\vdash	30	1			
Ŧ	Very stiff, moist, light brown, CLAY (CL)	‡									
ł	·	‡			1						
1		‡			1	<u></u>	9				
ł	Very dense, light grayish-brown, fine-grained	‡ .	4		7	IX	27				
35 +	SAND (SP)	‡				۲	50 (4"				
T		‡					``	1			
ł		t									
		L L.				1	I	لمجمل	المناهدان والتاسطين		Fig.
Proje			L	OG	()F	В	ORI	NG B-	1	1
	ect No.: 41863A				`						B-6-
A/OR-	0783-235R				_	·W	000	WARD	-CLY DE	CONSUL	TANTS

프루		GR.	APHI	C LOG	-	SAI	MPLE				
DEPTH (FEET)	DESCRIPTION	J. rrodd	5. p	OVA (ppm) m Beck le gg'd	o Z	Туре	Blow	Drilling Rate/ Time		REMARKS	
	-	<u> </u>		7	8	X	14 24 36				
40 +	Moist, light brown, CLAY (CL) with some grained SAND	fine-						·			
	Dense, brownish-gray, SILTY, fine-grained S	SAND (SM)		5	9	X	12 17 30				
45	Hard, moist, brown CLAY (CL)										
+	Very dense, gray, fine-grained SAND (SP)			18	10	X	13 22 34		,		
50 +	Bottom of Boring at 50 feet										-11-20
‡		‡									
55		‡									- .
‡		‡ +									
50		‡									
‡		‡									
55											
1		<u> </u>									
10 +		<u>‡</u>									
		Ī									
Ī								;			
75 		†						! !			
+		+									
0 🕇		#									7
roject	DOUGLAS TORRANCE	CON	1_ T	LOG	<u>ــ</u>	L F	BC)BI	NG	B-1	Fig. B-6

LOCA	TION Boiler Room At T-19, 20 (C-6 Facili	ty)			AND	ATI	ON UM	Appro	eximately 52 Feet N	ASL
	Datum Exploration, Inc.		Step			TED		29/86	PATE 1/5	
COL	Simco 2400SK, Datum D27-L (Dietri	ch Gasol	ine E	naine)	COM		ĪON	51´	ROCK	
DIAM OF W	LL CASING 6" Hollow Stem Auger; No	Casing i	n Inst	alled	OF 8	NO.	L ES	ST	UNDIST. 20 COR	
Pin	N/A N/A				W	ATE!		181 _	COMPL 24	H18
TACK	OF PERFORATION N/A					GED		aldson/	CHECKED BY:	
TYPE	Concrete, #60 Silca Sand (85%) and Benton					Sd				
ΞF			GRAP	HIC LC	ß		AMPLI	8	•	
DEPTH (FEET)	DESCRIPTION		المحور	1	< €	. :		235	REMARKS	
		\	5	8 3	8	2	2 23	Der	· · · · · · · · · · · · · · · · · · ·	
1 1	Concrete and pea gravel.				1				Hydrocarbon odor	
	Stff, damp, olive to brown SILTY CLAY (CL-CH).	+			250	1)	NR			
5					300	2	NR		Hydrocarbon odor staining throughout boring.	
10		+			140	3	NR			
15	Becomes olive to dark olive green.	† + + + + + + + + + + + + + + + + + + +	·		440	4	NR	-		
20		1			>1000	5	NR			
25		‡ ‡			56 0	6	NF			
30	} Gravel lense (to 2″∅).	‡ ‡ ‡			460	7 5	NF	1	Drilling difficult- drilling. Commence drilling	g at 31′
35	Becomes hard and grey, sandy, and thinly laminated. Becomes silty.	‡			کر م	7	75		on 1/5/87 with o	atum
Proje	et: DOUGLAS TORRANCE	I	., -	<u></u>	<u></u>	-				Fig.
-	ect No.: 41863B			L	OG	0	FE	BORI	NG B-2	B-7-1
	0783-236R					·	WCC	WARR	-CLYDE CONSUL	TANTO



LOCA	TION Boiler Room at T-19, 20 (C-6 Fa	cility)			AND	ATIC DAT	N UM	Арро	ximately	52 Fee	MSL
DAIL	Datum Exploration, Inc	HILLER K	it Step	hens	DAT	TED		6/87	FINISH	ED	/6/87
POUL	Datum D27-L (Dietrich Gasoline			_	COM	HIE:		31'	DEPTH	(FT)	_
OF W	6" Hollow Stem Auger;	No Casing	Install	ed	OF E	NO.	ES DI	_	UNDIS	· - I	CORE _
FA	ORATION N/A					î Hî		IST No			24 HAS.
BACK	OF PERFORATION N/A				LOG	GED			CHEC	KED BY	
SEAL	OF Concrete, #60 Silca Sand (85%) and Be	ntonite (1					Donald				Sd
EE		٠	GRAP	HIC LC	G		AMPLE	3			
DEPTH (FEET)	DESCRIPTION		8	1	₹	. 1	RŠ	夏 夏日	•	TEMAR	<8
	•	155	3	88	V 00	9 1	<u> </u>	E E			2000
	Concrete					- }	1				
	Dense, damp, light grey, fine SAND (SP)	with :									
3	FeO ₂ staining and hydrocarbon odor.				. [1 1			
	Stiff, damp, dark brown SILTY CLAY (CL-CH).			1	1	1	1 1			
5-	Gent, damp, dark brown orzer ozne (02 0117.				. k	,				
		}			310	12	48				
]]					7				
]]	[1				
}	; ` ,					İ		1			
10-	Gravel lense (< 2"Ø).	-	-			٦k	7 30				- .
1	Becomes hard.	•			105	2	50/ 5"				
}]					ገ °				
1 7	·						1	_			
							Ì				
15	Medium dense, damp, grey CLAYEY SA	AND -	-			٦k	7	1 1	Easier	drilling	
l	(SC) strong hydrocarbon odor.				62	$ ^3 $	27				
]]									
1							ŀ				
	 -										
20	Becomes dense and greyish brown.	-			3 5 0	4	47				
į		•			ا	Z	7, 1				
‡	, , , , , , , , , , , , , , , , , , ,	1									
‡							1				
‡	T December was december as a second							1			
25	Becomes very dense, grey, more SANDY (SC-SP).	-			260	5	7 65				
‡					[]	ľK	" <i> </i>				
‡		4									
‡].			
					340	6	7 66				
30 +					H	⊢¥	4.	1			· · · · · · · · · · · · · · · · · · ·
#	Bottom of Boring at 31 Feet.										
‡	•	-	<u> </u>		1		1]		
‡							-	1	1		
ˈ <u> </u> ‡		1				i	1			•	
35	•	-					-		1		
‡		. 1					1	1	1		
	2010: 10 110: 1		<u></u>		<u> </u>			ــــــــــــــــــــــــــــــــــــــ	<u> </u>	-	-:-
Proje				1.0	OG	O	FA	ORI	NG E	1-3	Fig.
Proj	sct No.: 41863B										B-8-1
LA/OR-	0783-235R						WOOD	WAR	-CLYDE	CONS	ULTANTS

ORING	on bodgids Allerdie o o racine			EL	1OTAV3			ot Avai		
RILLIN GENC'	G A & R Drilling ORILL	^{ER} M. Smi	ith	DA ST	ARTED	5-26		DATE FINISHED	5-26	<u>–87</u>
NLLIE	G CME 75 8—inch O.D.,	I.S.A.		CC	MPLETIC PTH (ft	on 6	1.5	ROCK DEPTH (
PE O		_		BO	AMETER ORING (i	OF in.)	8	DIAMETEI WELL (in	.}	_
OF	DIST UNDIST. 10	CORE			GGED B	ΙΥ		CHECKED	BY	L _
MPLE	FIRST COMPL.	24 HRS.		1	۲.	Glaesi	man		B. Jacol	DS
HTÝ.	(ft)			<u> </u>	SAMPL	F				
-		WELL			ORMA		ୃତ୍ତା			
(feet)	DESCRIPTION	WELL		П			ا ۼ	1	REMARKS	
₹\$		LOG			يد ا	0.V.A.	E e)			
- I			ģ	Type	Blow Count	(ppm)	Drilling Rate (Time)			
-	5" Asphalt Cover.		 							
Ŧ	Damp, reddish brown, SILTY fine grained S	AND +					1330			
Ţ	(SP), with some CLAY and GRAVEL.	Ŧ								
‡	(logged from cuttings only)	‡								
ł	•	<u>†</u>								
5		±								
7	Damp, yellowish brown, SILTY fine grained	SAND								
‡	(SM-SP).	‡								
±		‡								
Ŧ	•	ţ	1							
Ŧ		ł				1				
10‡		Ŧ								- .
‡		‡				1				
ł		‡								
Ŧ		t								
‡		Ŧ					'			
_ ‡		‡	1	∇		40	1400			
15‡		‡	'	Δ			' ' ' '			
Ŧ		+	1		·					
‡		Ţ	l							
‡		‡								
İ	Damp, medium gray, CLAYEY SILT (ML), s	ome ‡		Ļ,	l					
20‡	fine grained SAND, brown oily staining in	<u> </u>	2	X		500	1420	Strong	odor.	
²	tube #4.	Ŧ	İ	\vdash	ł	1		-		
ţ		‡			<u> </u>					
ł		‡			1					
Ŧ		ł						,		
‡		Ţ		L				l		
25‡		‡	3	ΙX		550	1450	Strong	odor.	
+		t	1	٣	1					
Ţ		ŧ				1				
‡		‡								
<u> </u>		‡								
f		‡		\Box	1	550	1516	Strong	odor	•
30‡	•	+	4	Ŋ	Į.	330	11212	Strong	odor.	
‡		‡			1		1			
Ì		‡			İ					
Ŧ		- - †								
‡	Very damp (product) beoweigh argy SANI	ny Į								
t	Very damp (product), brownish gray, SAN SILT to SILTY SAND (SM), free product or	γ ‡	5	∇	1	+1000	1535	Strong	odor.	
35	tubes.	‡	~	\triangle	4	1		59		
Ŧ		 								
‡		- - ↓								
	ject: DOUGLAS AIRCRAFT COMPANY			<u> </u>			INIA	D 4		Fig.
	ject No.: 41863B		L(JG	UF	BOR	ING	B-4		B-9-
										, – –

DEPTH (feet)	DESCRIPTION	WELL	No.	Туре	Blow Count	0.V.A. (ppm)	Drilling Rate (T.)	REMARKS
40	Damp, gray, CLAYEY SILT (ML). on tubes.		6		N/A	700	1550	Strong odor.
45			7	X	11	400	1620	Strong odor.
50	Damp, brown, SILTY fine SAND (SM-SP), micaceous.		8	X	11	400	1645	Strong odor.
55			9	X	11	+1000	1710	· · · · · · · · · · · · · · · · · · ·
60	Damp, light yellowish brown, CLAYEY SILT (ML).	† † † † †	10	X	11	100	1750	Slight to moderate odor.
65	Bottom of Boring at 60.5 feet.	† † † † †						Note: Angle drilled at 26. No blow counts taken due to angle drilling.
63		T - - - - - - - - - - - - - - - - - - -						
70		† † † † † †						
75		† † †				:		
80-	· · · · · · · · · · · · · · · · · · ·	+						
l	ject: DOUGLAS AIRCRAFT COMPANY ject No.: 41863B	CONT	. L()G	OF	BOR		B-4 Fig. B-9-2 DOWARD-CLYDE CONSULTANTS

APPENDIX C

WATER AND SOIL ANALYTICAL RESULTS
WITH CHAIN-OF-CUSTODY FORMS

(ABC/DAPPA)

April 2, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5557



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: One (1) water sample

Date Received: 3-27-87 Purchase Order No: 41863B

The sample was analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results sheets.

Page 1 of 1

Michael Shelton

Senior Chemist

D.J. Northington, Ph.D. Technical Director

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 03/27/87 GCMS FILENAME: 5557V3
LEVEL: LOW MATRIX: WATER
DATE PREPARED: 04/01/87 DATE ANALYZED: 04/01/87

STANDARD ID: VDA280 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 100UL

CAS #	COMPOUND	CONC: UG/L(PPI	
52264774 <u>7</u> 24	*************************************		•
74-87-3	CHLOROMETHANE	NI	300.
74-87-3 74-83-9	BROMOMETHANE	NI NI	
75-01-4	VINYL CHLORIDE	NI NI	
75-01-4 75-00-3	CHLOROETHANE	N.	
75-00-3 75-09-2	METHYLENE CHLORIDE	N.	
67-64-1	ACETONE	· N	
107-02-8	ACROLEIN	N.	
107-13-1	ACRYLONITRILE	N	
75-15-0	CARBON DISULFIDE	N	
75-35-4	1, 1-DICHLOROETHENE	2800.	5 0.
75-34-3	1, 1-DICHLOROETHANE	N	D 50.
156-60-5	TRANS-1, 2-DICHLOROETHENE	. N	ರ ಶಾ
109-99-9	TETRAHYDROFURAN	N	D 50.
75-69-4	TRICHLOROFLUOROMETHANE	N	D 50
76-13-1	FREON-TF	N	D 50.
106-93-4	ETHYLENE DIBROMIDE	N	D 50.
123-91-1	1,4-DIDXANE	N	D 50.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	N	D 50
67-66-3	CHLOROFORM	N	D 50.
107-06-2	1,2-DICHLOROETHANE	. N	
78-93-3	2-BUTANONE	N	D 500.
71-55-6	1, 1, 1-TRICHLORDETHANE	300.	5 0.
16-23-5	CARBON TETRACHLORIDE	N	D 50.
108-05-4	VINYL ACETATE	N	ID 300
75-27-4	BROMODICHLOROMETHANE		<u>m</u> 50.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE		ID 50
78-8 7-5	1,2-DICHLOROPROPANE		ID 50
10061-02-6	TRANS-1, 3-DICHLOROPROPENE		ID 50.
79-01-6	TRICHLOROETHENE	4600.	5Q.
124-48-1	DIBROMOCHLOROMETHANE		ID 50.
79-00-5	1, 1, 2-TRICHLORDETHANE		IL 50.
71-43-2	BENZENE	85	5C.
10061-01-5	CIS-1,3-DICHLOROPROPENE .		1D 50
110-75-8	2-CHLOROETHYLVINYL ETHER		€E 500.
75-25-2	BROMOFORM		1D 50.
119-78-6	2-HEXANDNE		1D 300
108-10-1	4-METHYL-2-PENTANDNE		1D 300
127-18-4	TETRACHLORDETHENE		ND 50
108-88-3	TOLUENE	N	1D 50.

CLIENT: WOODWARD-CLYDE

SAMPLE: MW-1(41)A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

03/27/87

GCMS FILENAME:

5557V3

LEVEL:

CAS #

120-82-1

LOW

MATRIX:

WATER

DATE PREPARED:

04/01/87

DATE ANALYZED:

04/01/87

ND

50

STANDARD ID:

VDA280

1, 2, 4-TRICHLOROBENZENE

SAMPLE AMOUNT:

100UL

INSTRUMENT ID:

5101

DETECTION COMPOUND CONC: UG/L(PPB) LIMIT

108-90-7 CHLOROBENZENE ND 50 100-41-4 ETHYLBENZENE NΡ 50. 100-42-5 STYRENE 50. ND 95-47-6 TOTAL XYLENES 50. ND 108-41-8 M-CHLOROTOLUENE 50. ND 95-50-1 1, 2-DICHLOROBENZENE ND 50 541-73-1 1,3-DICHLORDBENZENE ND 50. 106-46-7 1,4-DICHLORDBENZENE ND 50.

CLIENT:

WOODWARD-CLYDE

SAMPLE:

MW-1(41)A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants SHIPMENT NO .: _ CHAIN OF CUSTODY RECORD ____OF___ PAGE_ 127/87 brance PROJECT NAME: 41863B PROJECT NO .: _ Type of Preservation Type of Sample Analysis Required * Type of Container Location Sample Number Temp Chemical Method Material HUTCH Grab MW-1/41 . در " u • 16 Sampler's Signature: Total Number of Samples Shipped: 5 Date Relinquished By: Bu Received By: 327/8 Signature_ Signature_ Printed Name Michael Shelton Jacobs Printed Name, T:me NOAS Company___ Company___ 5:42 Analysis Reason_ Date Received By: Relinquished By: Signature_ Signature_ Printed Name. Printed Name_ Time Company_ Company_ Reason_ Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name_ Time

Company_

Received By:

Signature_

Company___

Printed Name___

Special Shipment / Handling / Storage Requirements:

Company____ Reason_____

Signature_

Company___ Reason ____

Relinquished By:

Printed Name _

* Note - This does not constitute authorization to proceed with analysis

LA-OR-0183-421

Date

Time

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 5677



ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seven (7) water samples

Date Received: 4-13-87 Purchase Order No: 41863B

Three of the samples were analyzed for volatile organic compounds by GCMS according to EPA method 624. The results are reported in the following Organics Analysis Data Results Sheets.

Page 1 of 1

Michael Shelton

Senior Chemist

D.J. Northington, Ph.D. Technical Director

WOODWARD CLYDE CLIENT:

SAMPLE: MW-1, A.

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

OCMS FILENAME:

567772

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

DATE ANALYZED:

04/15/87

STANDARD ID:

VDA457

INSTRUMENT ID: ==5100

SAMPLE AMOUNT: 100UL

				DETECTION
CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT
李克尔克莱尔克里尼尼亚			*********	*********
74-87-3	CHLOROMETHANE		ND	300 .
74-83-9	BROMOMETHANE		ND ND	3 00.
75-01-4	VINYL CHLORIDE		ND	3 00.
75-0 0-3	CHLOROETHANE		ND	30 0.
75-09-2	METHYLENE CHLORIDE		ND	5 00.
67-64-1	ACETONE		ND	5 00.
107-02-8	ACROLEIN		ND	5 00.
107-13-1	ACRYLONITRILE		ND	50 0.
75-15-0	CARBON DISULFIDE		ND	5 0.
75-35-4	1,1-DICHLOROETHENE		370 0.	50 .
75-34-3	1,1-DICHLORDETHANE		ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	50 .
109-99-9	TETRAHYDROFURAN		ND .	50 .
75-69-4	TRICHLOROFLUOROMETHANE		ND	50 .
76-13-1	FREON-TF		ND	50 .
106-93-4	ETHYLENE DIBROMIDE		ND	50 .
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1.2-DIBROMO-3-CHLOROPROPANE		ND	50 .
67-66-3	CHLOROFORM		ND	50 .
107-06-2	1,2-DICHLOROETHANE		ND	50 .
78-93-3	2-BUTANONE		ND	5 00.
71-55-6	1,1,1-TRICHLOROETHANE		2 60.	5 0.
16-23-5	CARBON TETRACHLORIDE		ND	50.
108-05-4	VINYL ACETATE		ND	3 00.
75-27-4	BROMODICHLOROMETHANE		ND 1	50 .
79-34-5	1,1,2,2-TETRACHLORDETHANE		ND	5 0.
78-87-5	1,2-DICHLOROPROPANE		ND	5 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	50.
79-01-6	TRICHLOROETHENE		55 00.	5 0.
124-48-1	CHLORODIBROMOMETHANE		ND	5 0.
79-00-5	1,1,2-TRICHLORDETHANE		ND	5 0.
71-43-2	BENZENE		110.	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	50 .
110-75-8	2-CHLORDETHYLVINYLETHER		ND	500 .
75-25-2	BROMOFORM		ND	50 . °
119-78-6	2-HEXANONE		ND	3 00.
108-10-1	4-METHYL-2-PENTANONE		ND	3 00.
127-18-4	TETRACHLOROETHENE		ND	5 0.
108-88-3	TOLUENE		ND	50 .

WOODWARD CLYDE CLIENT:

MW-1, A SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

DRCANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 04/13/87

QCMS FILENAME:

567772

LEVEL:

CAS #

108-90-7

100-41-4

100-42-5

95-47-6 108-41-8

541-73-1

106-46-7

95-50-1

120-82-1

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

04/15/87

STANDARD ID:

VDA457

DATE ANALYZED: INSTRUMENT ID:

5100

SAMPLE AMOUNT:

100UL

CHLOROBENZENE ETHYLBENZENE

TOTAL XYLENES

M-CHLOROTOLUENE 1,3-DICHLOROBENZENE

1,4-DICHLOROBENZENE

1, 2-DICHLOROBENZENE

1, 2, 4-TRICHLOROBENZENE

COMPOUND

STYRENE

_	UG/L(PPB)	DETECTION LIMIT
	ND	50 .
	ND	5 0.
	ND	50 .
	ND	5 0.
	ND	5 0.
•	ND	5 0

ND

ND

ND

50.

50.

50.

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION

UG/L(PPB)

NONE FOUND

VOA

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, B

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

5677V3

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

04/15/87

04/15/87

STANDARD ID:

VDA457

DATE ANALYZED: INSTRUMENT ID:

5100

SAMPLE AMOUNT:

100UL

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	300.
74-83-9	BROMOMETHANE		ND	300.
75-01-4	VINYL CHLORIDE		ND	300.
75-00-3	CHLOROETHANE		ND	3 00.
75-09-2	METHYLENE CHLORIDE		ND	5 00.
67-64-1	ACETONE		ND	500 .
107-02-8	ACROLEIN		ND	5 00.
107-13-1	ACRYLONITRILE		ND	5 00.
75-15-0	CARBON DISULFIDE		ND	5 0.
75-35-4	1,1-DICHLOROETHENE		2500 .	5 Q.
75-34-3	1,1-DICHLOROETHANE		ND	5 0.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	50 .
109-99-9	TETRAHYDROFURAN:		ND	5 0.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5 0.
76-13-1	FREON-TF		ND	5 0.
106-93-4	ETHYLENE DIBROMIDE		ND	50 .
123-91-1	1,4-DIOXANE		ND	5 0.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5 0.
67-66-3	CHLOROFORM		ND	5 0.
107-06-2	1,2-DICHLORGETHANE		ND	5 0.
78-93-3	2-BUTANONE		ND	50 0.
71-55-6	1,1,1-TRICHLORDETHANE		120.	50.
16-23-5	CARBON TETRACHLORIDE		ND	5 0.
108-05-4	VINYL ACETATE		ND	3 00.
75-27-4	BROMODICHLOROMETHANE		ND	5 0.
79-34-5	1,1,2,2-TETRACHLORDETHANE		ND	5 0.
78-87-5	1,2-DICHLOROPROPANE		ND	5 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5 0.
79-01-6	TRICHLOROETHENE		3 600.	5 0.
124-48-1	CHLORODIBROMOMETHANE		ND	5 0.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5 0.
71-43-2	BENZENE		ND	5 0.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5 0.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	5 00.
75-25-2	BROMOFORM		ND	5 0.
119-78-6	2-HEXANDNE		ND	3 00.
108-10-1	4-METHYL-2-PENTANONE		ND	3 00.
127-18-4	TETRACHLOROETHENE		ND	5 0.
108-88-3	TOLUENE		ND	5 0.

WOODWARD CLYDE CLIENT:

MW-1, B -SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

04/13/87

GCMS FILENAME:

5677V3

LEVEL:

HATER

LOW

MATRIX: Lake

04/15/B7

DATE PREPARED: STANDARD ID:

04/15/87

DATE ANALYZED:

SAMPLE AMOUNT:

VDA457 100UL

INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
######################################	B. 数据 经 医 医 食		*********	
108-90-7	CHLOROBENZENE		ND	5 0.
100-41-4	ETHYLBENZENE		ND	5 0.
100-42-5	STYRENE		ND	5 0.
95-47-6	TOTAL XYLENES		ND	50 .
108-41-8	M-CHLOROTOLUENE		ND	50 .
541-73-1	1,3-DICHLOROBENZENE		ND	5 0.
106-46-7	1,4-DICHLOROBENZENE		ND	5 0.
95-50-1	1,2-DICHLOROBENZENE		ND	5 0.
120-82-1	1.9.4-TRICHLORORENZENE		ND	50.

CLIENT: WOODWARD CLYDE

SAMPLE: MW-1, B

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UC/L(PPB)

1 NONE FOUND

WOODWARD CLYDE CLIENT:

SAMPLE: TRIP BLANK

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

5 4 14 1 **5** 1

DATE RECEIVED: **04/13/87** GCMS FILENAME: **5**677V4 LOW MATRIX: WATER LEVEL: DATE PREPARED: 04/15/87 DATE ANALYZED: 04/15/87

STANDARD ID: V0A457 INSTRUMENT ID: 5100

SAMPLE AMOUNT: 5. OML

				DETECTION
CAS #	COMPOUND	CONC:	UG/L(PPB)	LIMIT
B 含有效性含含含含含含:	*************************************	2554574	*****	*********
74-87-3	CHLOROMETHANE		ND	5 .
74-83-9	BROMOMETHANE		ND	5 .
75-01-4	VINYL CHLORIDE		ND	5 .
75-00-3	CHLOROETHANE		ND	5 .
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE	•	ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLOROETHENE		ND	1.
75-34-3	1,1-DICHLOROETHANE		ND	1.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	-	ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1,2-DICHLOROETHANE		DM	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLORDETHANE		ND	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5 .
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1, 1, 2, 2-TETRACHLORDETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE	•	ND	1 .
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		ND	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1, 1, 2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1 .
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
75-25-2	BROMOFORM		ND	1.
119-78-6	2-HEXANDNE		ND	5 .
108-10-1	4-METHYL-2-PENTANONE		ND	5.
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		ND	1 .

= 60,000,000 =

WOODWARD CLYDE CLIENT:

TRIP BLANK SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: DATE RECEIVED: 04/13/B7

567744 WATER MATRIX: LEVEL: LOW

04/15/87 DATE ANALYZED: 04/15/87 DATE PREPARED:

INSTRUMENT ID: 5100 **VDA457** STANDARD ID:

5. DML SAMPLE AMOUNT:

CAS #	COMPOUND	CONC: UG/	L(PPB)	DETECTION LIMIT
		2252222222	223222	**********
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE		ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ND	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.
120-82-1	1, 2, 4-TRICHLOROBENZENE		ND	1.

CLIENT:

WOODWARD CLYDE

SAMPLE:

TRIP BLANK

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION (

CONCENTRATION

UG/L(PPB)

1 NONE FOUND

Woodward-Clyde Consultants



SHIPMENT NO .:___

CHAIN	OF	CUSTODY	RECORD
••••	•		

PAGE__LOF__

PROJECT NAME:	Douglas -	Porrance	DATE 4 / (3/87
PROJECT NAME			
PROJECT NO.:	418638	·	

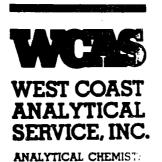
	1	Type of	Sample	Type of Container	Type	of Preservation	Analysis Required*
Sample Number	Location	Material	Method		Temp	Chemical	
nw-1(41)A		111500	Birled	40 ml Viel	Cool	/	8240
i B				tone vial	 		8240
- C		4	١.	500 ml Africe	1	//_	Hota 7
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V E		٧.	1	500 nd Amber			SAMPLE
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Total Number of			Sample	r's Signature:		July	, Date
			Sample				Date //13/5
Relinquished By Signature	enon 22	ub TACO	35				Date //3 / 5
Relinquished By Signature Printed Name Company	Ruida Bodes	ub TACO	35			light lettelt garat Fal UCHS	7/13/3 Time
Relinquished By Signature Printed Name Company W	superiories	ub TACO	35	Received By: Signature Printed Name L Company			7/13/3 Time 4:50
Relinquished By Signature Printed Name Company Was Reason Relinquished By:	mondie Rivides Dediese Lysis	ub TACO	35	Received By: Signature Printed Name Company Received By:	Maigs Mar	lettelt garat Fal WCHS	7/13/3 Time
Relinquished By Signature Printed Name Company Was Relinquished By: Signature	mondie Rivida Sedisis Lysis	ukz Theor	35	Received By: Signature Printed Name L Company	Marga Mar	lettelt garat Fal WCAS	7/13/5 Time 4:50 Date
Relinquished By Signature Printed Name Company Was Relinquished By: Signature Printed Name	Ruide Ro Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Rui	ukz Theor	35	Received By: Signature Printed Name Company Received By: Signature	Mayon Mbr	lettelt garat Fall WCHS	7/13/3 Time 4:50
Relinquished By Signature Printed Name Company Was Relinquished By: Signature	Ruide Ro Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Ruide Rui	ukz Theor	35	Received By: Signature Printed Name Company Received By: Signature Printed Name Company	Mayon Mbr	lettelt garat Fall WCHS	7/3/3 Time 4:55 Date // Time
Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Reason Relinquished By:	Ruida Buida Dedis.s Lysis	abe	35 de	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By:	Marga Har	lettelt garet Fal WCHS	7/3/3 Time 4:55 Date / Time Date
Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature	Ruida Ruida Dedis.r Lysis	ar Theor	35 de.	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature	Mayon Her	lettelt garet Fal WCHS	
Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name	Ruida Ruida Dedw.r Lysis	ar Theor	35 de	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Received By: Signature Printed Name	Mayos Hbr	lettelt garet Fal WCHS	7/3/3 Time 4:55 Date // Time Date // /
Relinquished By Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature	Ruida Ruida Dedw.s Lysis	ar Theor	35 de.	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Company Received By: Signature Printed Name Company	Mayos Hbr	lettelt garet Fal WCHS	
Relinquished By Signature Company Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Reason Relinquished By: Reason Relinquished By: Reason Relinquished By:	Ruida Ruida Sedwir Lysis	abe	35 de	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Received By:	Maigs Helpi	lettelt garet Fall WCAS	
Relinquished By Signature Printed Name Company Reason Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature	Ruide	aber Theory	35 de.	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Signature Signature	Mayos Hebr	lettelt garet Fall WCAS	
Relinquished By Signature Printed Name Reason Relinquished By: Signature Printed Name Company Reason Relinquished By: Signature Printed Name Reason Relinquished By: Signature Printed Name Printed Name Printed Name Printed Name Printed Name Printed Name	Ruides Buides Buides Busis	abe	35 de.	Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Company Received By: Signature Printed Name Printed Name	Mayos Hebr	lettelt garet Fall WCAS	
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November 11, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Brian Jacobs

7621 JOB NO.



LABORATORY REPORT

Samples Received: Four (4) water samples in duplicate

Date Received: 11-2-87

Purchase Order No: Proj: 87418630-1000/Douglas

The samples were analyzed as follows:

Results <u>Analysis</u> Samples Analyzed

Volatile Organics Three waters

Data Sheets by EPA 624

Fuel Hydrocarbons by Three waters Table I

modified EPA 8015

TABLE I

Parts Per Million

Sample No.	<u>Gasoline</u>	Diesel <u>Fuel</u>	Kerosene	Mineral Spirits
MW-2B	ND	ND	ND	ND
MW-3B	ND	ND	ND	ND
MW-4B	ND	ND	ND	ND
Detection Limit	t 2	2	2	2

ND - Not Detected

Page 1 of 1 Date Analyzed: 11-5-87

Michael Shelton

Senior Chemist

Northington, Ph.D.

Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

11/02/87 GCMS FILENAME: 7621V1 DATE RECEIVED: WATER LEVEL: LOW MATRIX: 11/11/87 DATE PREPARED: 11/11/87 DATE ANALYZED: INSTRUMENT ID: 5100 VOA608 STANDARD ID:

SAMPLE AMOUNT: 5ML

_			DETECTION LIMIT
CAS #	COMPOUND	CONC: UG/L(PPB)	PIMII
	*****	ND	5.
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	ND	5. 5.
75-01-4	VINYL CHLORIDE	- -	5. 5.
75-00-3	CHLOROETHANE	ND	10.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	5.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE	ИD	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1:
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	. 5.	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	14.	1.
124-48-1	CHLORODIBROMOMETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	
108-10-1	4-METHYL-2-PENTANONE	ND	
127-18-4	TETRACHLOROETHENE	ND	
108-88-3	TOLUENE	6.	1.
100-00-2	TOTOTIVE		_ •

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/02/87 GCMS FILENAME: 7621V1
LEVEL: LOW MATRIX: WATER
DATE PREPARED: 11/11/87 DATE ANALYZED: 11/11/87
STANDARD ID: VOA608 INSTRUMENT ID: 5100

STANDARD ID: VOA608 SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	conc: u	G/L(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	1.
100-41-4	ETHYLBENZENE		ND	1.
100-42-5	STYRENE		ND	1.
95-47-6	TOTAL XYLENES		ND	1.
108-41-8	M-CHLOROTOLUENE	:	ND	1.
541-73-1	1,3-DICHLOROBENZENE		ND	1.
106-46-7	1,4-DICHLOROBENZENE		ИD	1.
95-50-1	1,2-DICHLOROBENZENE		ND	1.

CLIENT: WOODWARD-CLYDE

DOUGLAS AIRCRAFT

SAMPLE: MW-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION

CONCENTRATION

UG/L(PPB)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

7621V3 GCMS FILENAME: DATE RECEIVED: 11/02/87 WATER LOW MATRIX: LEVEL: 11/11/87 DATE ANALYZED: 11/11/87 DATE PREPARED: INSTRUMENT ID: 5100 STANDARD ID: VOA608

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC:	UG/ML(PPM)	LIMIT
74-87-3	CHLOROMETHANE	******	ND	5.
74-87-3 74-83-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-01-4 75-00-3	CHLOROETHANE		ND	5.
75-00-3 75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE	•	ND	1.
75-35-4	1,1-DICHLOROETHENE		38.	1.
75-34-3	1.1-DICHLOROETHANE		ND	1.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		ND	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1,4-DIOXANE		ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1,2-DICHLOROETHANE		ND .	1.
78-93-3	2-BUTANONE		ND	10.
71-55-6	1,1,1-TRICHLOROETHANE		110.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5.
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		10.	1.
124-48-1	CHLORODIBROMOMETHANE		ND	1.
79-00-5	1,1,2-TRICHLOROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	10.
75-25-2	BROMOFORM		ND	1.
119-78-6	2-HEXANONE		ND	5.
108-10-1	4-METHYL-2-PENTANONE		54.	5 .
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		80.	1.

DETECTION

WOODWARD-CLYDE CLIENT: SITE: DOUGLAS AIRCRAFT

MW-3A SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

11/02/87 GCMS FILENAME: 7621V3 DATE RECEIVED: MATRIX: WATER LEVEL: LOW 11/11/87 DATE PREPARED: 11/11/87 DATE ANALYZED: INSTRUMENT ID: 5100

STANDARD ID: **VOA608**

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC: UG/ML(PPM)	DETECTION LIMIT

108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.
95-50-1	1,2-DICHLOROBENZENE	ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-3A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V2 11/02/87 DATE RECEIVED: WATER MATRIX: LEVEL: LOW 11/11/87 DATE ANALYZED: 11/11/87 DATE PREPARED: INSTRUMENT ID: 5100 **VOA608** STANDARD ID:

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	 UG/L(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE	 ND	5.
74-83-9	BROMOMETHANE	ND	5.
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ИD	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	360.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
156-60-5	TRANS-1, 2-DICHLOROETHENE	2.	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	2.	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1,1,1-TRICHLOROETHANE	14.	. 1.
16-23-5	CARBON TETRACHLORIDE	ND	, 1.
108-05-4	VINYL ACETATE	ND	5.
75-27-4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1,1,2,2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	700.	1.
124-48-1	CHLORODIBROMOMETHANE	ND	1.
79-00-5	1,1,2-TRICHLOROETHANE	ND.	
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYLETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANONE	ND	5.
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	ND	1.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7621V2 11/02/87 DATE RECEIVED: MATRIX: WATER LOW LEVEL: DATE ANALYZED: 11/11/87 11/11/87 DATE PREPARED: VOA608 INSTRUMENT ID: 5100 STANDARD ID:

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	CONC: UG/L(PP)	DETECTION B) LIMIT
	2000年1200年2002年2002日2020日2020日2020日2020日		
108-90-7	CHLOROBENZENE	N:	-
100-41-4	ETHYLBENZENE	N:	D 1.
100-42-5	STYRENE	· N	D 1.
95-47-6	TOTAL XYLENES	N	D 1.
108-41-8	M-CHLOROTOLUENE	N N	D 1."
541-73-1	1,3-DICHLOROBENZENE	N	D 1.
106-46-7	1,4-DICHLOROBENZENE	N	D 1.
95-50-1	1.2-DICHLOROBENZENE	N	D 1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: MW-4A

TENTATIVELY IDENTIFIED COMPOUNDS

FRACTION CONCENTRATION COMPOUND NAME UG/L(PPB) 10. 1 CIS-1,2-DICHLOROETHYLENE VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

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	Printed Name				Printed Name Company			1 1000
	Printed Name				Printed Name Company			1 1000

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

108-88-3

TOLUENE

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 776172 LEVEL: LOW MATRIX: WATER DATE PREPARED: 11/16/87 DATE ANALYZED: 11/16/87 STANDARD ID: INSTRUMENT ID: V0A450 5101

SAMPLE AMOUNT: 250UL

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
	· .	·		
74-87-3	CHLOROMETHANE		ND	100.
74-83-9	BROMOMETHANE		ND	100.
75-01-4	VINYL CHLORIDE		DN	100.
75-00-3	CHLOROETHANE		ND	100.
75-09-2	METHYLENE CHLORIDE		ND	200.
67-64-1	ACETONE		ND	200.
107-02-8	ACROLEIN		ND	200.
107-13-1	ACRYLONITRILE		ND	200.
75-15-0	CARBON DISULFIDE		ND	20.
75-35-4	1,1-DICHLOROETHENE		3000.	20.
75-34-3	1,1-DICHLOROETHANE		23. <	20.
156-60-5	TRANS-1, 2-DICHLOROETHENE		75.	20.
109-99-9	TETRAHYDROFURAN		ND	20.
75-69-4	TRICHLOROFLUOROMETHANE		QИ	20.
76-13-1	FREON-TF		ND	20.
106-93-4	ETHYLENE DIBROMIDE		ND	20.
123-91-1	1,4-DIOXANE		ND	20.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	20.
67-66-3	CHLOROFORM		39.	20.
107-06-2	1,2-DICHLORGETHANE		ND -	20.
78-93-3	2-BUTANONE		ND	200.
71-55-6	1, 1, 1-TRICHLOROETHANE		160.	20.
16-23-5	CARBON TETRACHLORIDE		ND	20.
108-05-4	VINYL ACETATE		ND	100.
75-27-4	BROMODICHLOROMETHANE		ND	20.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE		ND	20.
78-87-5	1,2-DICHLOROPROPANE		ND	2 0.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	20.
79-01-6	TRICHLOROETHENE		5200.	20.
124-48-1	DIBROMOCHLOROMETHANE		ND	20.
79-00-5	1, 1, 2-TRICHLORDETHANE		ND	20.
71-43-2	BENZENE		140.	20.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	20.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	200.
75-25-2	BROMOFORM		ND	20.
119-78-6	2-HEXANDNE		ND	100.
108-10-1	4-METHYL-2-PENTANONE		ND	100.
127-18-4	TETRACHLORGETHENE		ND	20.

20.

ND

CLIENT: SITE:

WOODWARD-CLYDE

DOUGLAS AIRCRAFT

SAMPLE: WCC-1A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

7761V2

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/16/87

DATE ANALYZED:

11/16/87

STANDARD ID:

VDA450

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

250UL

DETECTION

CAS # COMPOUND CONC: UG/L(PPB)

LIMIT

2021442222	100-41-4 ETHYLBENZENE ND 20. 100-42-5 STYRENE ND 20. 75-47-6 TOTAL XYLENES ND 20. 108-41-8 M-CHLOROTOLUENE ND 20.		
108~90~7	CHLOROBENZENE	ND	20.
100-41-4	ETHYLBENZENE	ND	20.
100-42-5	STYRENE	ND	20.
75-47-6	TOTAL XYLENES	ND	20.
108-41-8	M-CHLOROTOLUENE	ND	20.
95-50-1	1,2-DICHLOROBENZENE	ND	20.
541-73-1	1.3-DICHLOROBENZENE	ND	20.
104-44-7	1.4-DICHLOROBENZENE	ND	20.

CLIENT: SITE:

WOODWARD-CLYDE DOUGLAS AIRCRAFT

SAMPLE:

WCC-1A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 CIS-1, 2-DICHLORGETHYLENE

AOV

200.

CLIENT: WOODWARD-CLYDE DOUGLAS AIRCRAFT SITE:

SAMPLE: WCC-2A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMB FILENAME: DATE RECEIVED: 11/13/87 776144 MATRIX: WATER LEVEL: LOW DATE ANALYZED: 11/16/87 DATE PREPARED: 11/16/87 INSTRUMENT ID: 5101 STANDARD ID: V0A450

SAMPLE AMOUNT: 5ML

CAS #	COMPOUND	 UG/L(PPB)	DETECTION LIMIT
	u pa p 2 = 2 0 2 p p p p p 2 3 5 2 7 7 2 7 2 2 2 2 2 2 2 2 2 2 2 2 2 2	 	
74-87-3	CHLOROMETHANE	ND	5.
74-83-9	BROMOMETHANE	ND	5 .
75-01-4	VINYL CHLORIDE	ND	5.
75-00-3	CHLOROETHANE	ND	5.
75-09-2	METHYLENE CHLORIDE	ND	10.
67-64-1	ACETONE	ND	10.
107-02-8	ACROLEIN	ND	10.
107-13-1	ACRYLONITRILE	ND	10.
75-15-0	CARBON DISULFIDE	ND	1.
75-35-4	1,1-DICHLOROETHENE	2.	1.
75-34-3	1,1-DICHLOROETHANE	ND	1.
154-60-5	TRANS-1, 2-DICHLORDETHENE	ND	1.
109-99-9	TETRAHYDROFURAN	ND	1.
75-69-4	TRICHLOROFLUOROMETHANE	ND	1.
76-13-1	FREON-TF	ND	1.
106-93-4	ETHYLENE DIBROMIDE	ND	1.
123-91-1	1,4-DIOXANE	ND	1.
96-12 - 8	1,2-DIBROMO-3-CHLOROPROPANE	ND	1.
67-66-3	CHLOROFORM	ND	1.
107-06-2	1,2-DICHLOROETHANE	ND	1.
78-93-3	2-BUTANONE	ND	10.
71-55-6	1, 1, 1-TRICHLOROETHANE	ND	1.
16-23-5	CARBON TETRACHLORIDE	ND	1.
108-05-4	VINYL ACETATE	ND.	5.
75-27~4	BROMODICHLOROMETHANE	ND	1.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE	ND	1.
78-87-5	1,2-DICHLOROPROPANE	ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	ND	1.
79-01-6	TRICHLOROETHENE	4.	1.
124-48-1	DIBROMOCHLOROMETHANE	ND	1.
79-00-5	1, 1, 2-TRICHLORDETHANE	ND	1.
71-43-2	BENZENE	ND	1.
10061-01-5	CIS-1,3-DICHLOROPROPENE	ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER	ND	10.
75-25-2	BROMOFORM	ND	1.
119-78-6	2-HEXANDNE	ND	5 .
108-10-1	4-METHYL-2-PENTANONE	ND	5.
127-18-4	TETRACHLOROETHENE	ND	1.
108-88-3	TOLUENE	1	1.

WOODWARD-CLYDE CLIENT: DOUGLAS AIRCRAFT SITE:

MCC-2A SAMPLE:

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

7761V4

LEVEL:

LOW

MATRIX:

WATER

DATE PREPARED:

11/16/87

DATE ANALYZED:

11/16/87

STANDARD ID:

VDA450

INSTRUMENT ID:

5101

SAMPLE AMOUNT:

5ML

DETECTION

ITMIT

COMPOUND	CUNC:	OG/L(PPB)	FILLT
# 262223x4426222222222222	=======================================		
CHLOROBENZENE		NĎ	1.
ETHYLBENZENE	•	ND	i .
STYRENE		ND	1.
TOTAL XYLENES		ND	1.
M-CHLOROTOLUENE		ND	1.
1, 2-DICHLOROBENZENE		ND	1.
1.3-DICHLOROBENZENE		ND	1.
1,4-DICHLOROBENZENE		, ND	1.
	CHLOROBENZENE ETHYLBENZENE STYRENE TOTAL XYLENES M-CHLOROTOLUENE 1,2-DICHLOROBENZENE 1,3-DICHLOROBENZENE	CHLOROBENZENE ETHYLBENZENE STYRENE TOTAL XYLENES M-CHLOROTOLUENE 1,2-DICHLOROBENZENE 1,3-DICHLOROBENZENE	CHLOROBENZENE ND ETHYLBENZENE ND STYRENE ND TOTAL XYLENES ND M-CHLOROTOLUENE ND 1,2-DICHLOROBENZENE ND 1,3-DICHLOROBENZENE ND

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-2A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/L(PPB)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 776176 LEVEL: MEDIUM MATRIX: WATER DATE PREPARED: 11/17/87 DATE ANALYZED: 11/17/87 V0A451 INSTRUMENT ID: 5101 STANDARD ID:

SAMPLE AMOUNT: 5UL

CAS #	COMPOUND	CONC:	UG/ML(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	5 .
74-83-9	BROMOMETHANE		ND	5.
75-01-4	VINYL CHLORIDE		ND	5.
75-00-3	CHLOROETHANE		ND	5.
75-09-2	METHYLENE CHLORIDE		ND	10.
67-64-1	ACETONE		ND	10.
107-02-8	ACROLEIN		ND	10.
107-13-1	ACRYLONITRILE		ND	10.
75-15-0	CARBON DISULFIDE		ND	1.
75-35-4	1,1-DICHLORDETHENE		88.	1.
75-34-3	1,1-DICHLORDETHANE		1.	1.
156-60-5	TRANS-1, 2-DICHLOROETHENE		1.	1.
109-99-9	TETRAHYDROFURAN		ND	1.
75-69-4	TRICHLOROFLUOROMETHANE		ND	1.
76-13-1	FREON-TF		MD	1.
106-93-4	ETHYLENE DIBROMIDE		ND	1.
123-91-1	1.4-DIDXANE		ND	1.
96-12-8	1.2-DIBROMO-3-CHLOROPROPANE		ND	1.
67-66-3	CHLOROFORM		ND	1.
107-06-2	1.2-DICHLOROETHANE		O. TR	1.
78-93-3	2-BUTANONE		5. TR	10.
71-55-6	1, 1, 1-TRICHLOROETHANE		54.	1.
16-23-5	CARBON TETRACHLORIDE		ND	1.
108-05-4	VINYL ACETATE		ND	5 .
75-27-4	BROMODICHLOROMETHANE		ND	1.
79-34-5	1, 1, 2, 2-TETRACHLOROETHANE		ND	1.
78-87-5	1,2-DICHLOROPROPANE		ND	1.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	1.
79-01-6	TRICHLOROETHENE		11.	1.
124-48-1	DIBROMOCHLOROMETHANE		ND	1.
79-00-5	1, 1, 2-TRICHLDROETHANE		ND	1.
71-43-2	BENZENE		ND	1.
10041-01-5	CIS-1,3-DICHLOROPROPENE		ND	1.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	10.
75-25-2	BROMOFORM		ND	<u>1</u>
119-78-6	2-HEXANONE		NĎ	5 .
108-10-1	4-METHYL-2-PENTANONE		70. ·	5 .
127-18-4	TETRACHLOROETHENE		ND	1.
108-88-3	TOLUENE		140.	1.

CLIENT:

WDODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

WCC-3A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED:

11/13/87

GCMS FILENAME:

776176

LEVEL:

MEDIUM

MATRIX:

WATER

DATE PREPARED:

11/17/87

11/17/87

STANDARD ID:

VDA451

DATE ANALYZED:

SAMPLE AMOUNT:

5UL

INSTRUMENT ID:

5101

DETECTION

CAS #

COMPOUND

CONC: UG/ML(PPM) LIMIT

108-90-7	CHLOROBENZENE	ND	1.
100-41-4	ETHYLBENZENE	ND	1.
100-42-5	STYRENE	ND	1.
95-47-6	TOTAL XYLENES	ND	1.
108-41-8	M-CHLOROTOLUENE	ND	1.
95-50-1	1, 2-DICHLORDBENZENE	ND	1.
541-73-1	1,3-DICHLOROBENZENE	ND	1.
106-46-7	1,4-DICHLOROBENZENE	ND	1.

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-3A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/ML(PPM)

1 NONE FOUND

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 11/13/87 GCMS FILENAME: 7761VB LEVEL: LDW MATRIX: WATER DATE PREPARED: 11/17/87 DATE ANALYZED: 11/17/B7 STANDARD ID: V0A451 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 500UL

CAS #	COMPOUND	CONC:	UG/L(PPB)	DETECTION LIMIT
	교 수인 400 400 (10) 대한 100 대한 100 대한 100 대한 100 대한 100 대한 100 대한 100 대표 CENTER END CENTER END CENTER END CENTER E			-26226-668846
74-87-3	CHLOROMETHANE		מא	5 0.
74-83-9	BROMOMETHANE		ND	50 .
75-01-4	VINYL CHLORIDE		ND	50 .
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	100.
67-64-1	ACETONE		ND	100.
107-02-8	ACROLEIN		QN	100.
107-13-1	ACRYLONITRILE		. ND	100.
75-15-0	CARBON DISULFIDE		ND	10.
75-35-4	1.1-DICHLOROETHENE		1200.	10.
75-34-3	1.1-DICHLORDETHANE		ND	10.
156-60-5	TRANS-1, 2-DICHLORDETHENE		ND	10.
109-99-9	TETRAHYDROFURAN		ND	10.
75-69-4	TRICHLOROFLUOROMETHANE		ND	10.
76-13-1	FREON-TF		ND	10.
106-93-4	ETHYLENE DIBROMIDE		ND	10.
123-91-1	1.4-DIOXANE		ND	10.
96-12 - 8	1,2-DIBROMO-3-CHLOROPROPANE		ND	10.
67-66-3	CHLOROFORM		ND	10.
107-06-2	1,2-DICHLOROETHANE		ND	10.
78-93-3	2-BUTANONE		ND	100.
71-55-6	1.1.1-TRICHLOROETHANE		35.	10.
16-23-5	CARBON TETRACHLORIDE		ND	10.
108-05-4	VINYL ACETATE		ND	5 0.
75-27-4	BROMODICHLOROMETHANE		ND	10.
79-34~5	1, 1, 2, 2-TETRACHLORDETHANE		ND	10.
78-87-5	1,2-DICHLOROPROPANE		ND	10.
10061-02-6	TRANS-1, 3-DICHLOROPROPENE		МD	10.
79-01-6	TRICHLOROETHENE		690 .	10.
124-48-1	DIBROMOCHLOROMETHANE		ND	10.
79-00-5	1, 1, 2-TRICHLOROETHANE		ND	10.
71-43-2	BENZENE		ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	· 10.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	100.
75-25-2	BROMOFORM		ND	10.
119-78-6	2-HEXANONE		ND	50.
108-10-1	4-METHYL-2-PENTANONE		ND	50 .
127-18-4	TETRACHLOROETHENE		ND	10.
108-88-3	TOLUENE		ND	10.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 11/13/87 776148 LEVEL: LOW MATRIX: WATER DATE ANALYZED: DATE PREPARED: 11/17/87 11/17/87 STANDARD ID: V0A451 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 500UL

CAS #	COMPOUND	CONC: UG/L(PPB)	
			[三三瀬
108-90-7	CHLOROBENZENE	ND	10.
100-41-4	ETHYLBÈNZENE	ND	10.
100-42-5	STYRENE	ND	10.
95-47-6	TOTAL XYLENES	ND	10
108-41-8	M-CHLOROTOLUENE	ND	10.
95-50-1	1.2-DICHLOROBENZENE	ND	10.
541-73-1	1,3-DICHLOROBENZENE	ND	10.
104-44-7	1. A-DICHI OPOBENZENE	ND	10

CLIENT: WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: WCC-4A

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

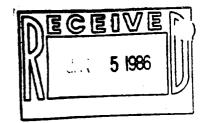
UG/L(PPB)

1 NONE FOUND

Data Reporting Gualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

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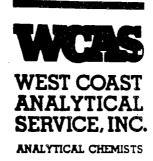


December 31, 1986

WOODWARD-CLYDE 203 No. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4932



LABORATORY REPORT

Samples: Two (2) soil samples

Date Received: 12-29-86

Purchase Order No: Project 41863B

The samples were analyzed for total petroleum hydrocarbon content using EPA method 418.1. The results are listed below:

Parts Per Million

Sample No.

Total Petroleum Hydrocarbons

B2-2-3 at 5' B2-7-3 at 30' Detection Limit

5000 6000 10

Date Analyzed: 12-30-86

Page 1 of 1

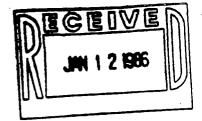
Isabella Gundran

Chemist

D.J. Northington, Ph.D. Technical Director

9840 Alburtis Avenue • Santa Fe Springs, California 90670 • 213/948-2225

		Woo	dward.	Clyde Consulta	ants (SHIP	MENT NO.:	
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	PROJEC	CT NO.:	/	7/1635				1
Sample Number	Location	Material	Sample Method	Type of Container	Type Temp	of Preservation Chemical	Analysis Required *	
	B2 /	SOIL	CANOD	BUNSS TUBE	1ce			
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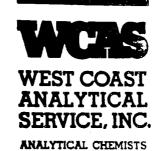


January 9, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Kevin Gibson

JOB NO. 4968



LABORATORY REPORT

Samples: Nineteen (19) soil samples

Date Received: 1-6-87
Purchase Order No: 41863B

Ten (10) samples were analyzed for total petroleum hydrocarbons by EPA method 418.1. The results are reported below:

Parts Per Million

Sample.No.	Total Petroleum Hydrocarbons
2-7-4	14000
2-8-4	2000
2-9-4	2000
2-10-4	19000
3-1-4	2900
3-2-4	27
3-3-4	1200
3-4-4	4400
3-5-3	13000
3-6-3	4100
Detection Limit	10

Date Extracted: 1-8-87
Date Analyzed: 1-8-87

Page 1 of 1

Isabelle Gundran

Chemist.

D.J. Northington, Ph.D. Technical Director

Woodward-Clyde Consultants SHIPMENT NO .: ____ PAGE_____OF_____ CHAIN OF CUSTODY RECORD DATE 1 161 87 DOUGLAS ARCRAFT PROJECT NAME: 418630 #4968 PROJECT NO .: _ Type of Preservation Type of Sample Analysis Required* Type of Container Sample Number Location Material Method Temp Chemical HOLD BARSTUGE B-2 156 EPA. 418.1, B-3 418.1 TPMC 418.1 TPHE 418.1 TPHC 4010 WISH TPML woulder, Total Number of Samples Shipped: Sampler's Signature: Date Relinquished By: Received By: 1618 Signature_ Signature_ Printed Name_ Printed Name_ Time Company_ Company_ 4:15 pm Reason. Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name, Time Company_ Company_ Reason_ Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name_ Time Company_ Company_ Reason_ Date Received By: Relinquished By: Signature_ Signature_ Printed Name_ Printed Name. Time Company_ Company_ Reason.

Special Shipment / Handling / Storage Requirements:

* Note - This does not constitute authorization to proceed with analysis

LA/OR-0183-421

June 5, 1987

WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistaire Callendar

JOB NO. 6039

JUN 0 8 1387 WEST COAST WCC-SANIA ANALYTICAL SERVICE, INC.

ANALYTICAL CHEMISTS

LABORATORY REPORT

Samples: Seventeen (17) soil samples

Date Received: 5-27-87
Purchase Order No: 41863B

Nine (9) soil samples were analyzed for total petroleum hydrocarbon content using EPA Method 418.1. The results are on Table I.

Table I

Parts Per Million

Sample No. Total Petroleum Hydrocarbon

B-4-1-2	ND
B-4-2-2	15000
B-4-3-2	44000
B-4-4-2	8200
B-4-5-2	28000
B-4-6-2	6000
B-4-7-2	1500
B-4-9-2	16000
B-4-10-2	ND
Detection Limit:	10

ND - Not Detected

Date Analyzed: 6-4-87

Page 1 of 1

Isabelle Gundran
Analytical Chemist

D.J. Northington, Ph.D. Technical Director

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* Note - This does not constitute authorization to proceed with analysis

BOE-C6-0078430

LA OR-0183-421

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V1
LEVEL: LOW MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87
STANDARD ID: VOA397 INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
24 07 2			========== ND	30.
74-87-3	CHLOROMETHANE BROMOMETHANE		ND	30.
74-83-9			ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	5.
75-15-0	CARBON DISULFIDE		18.	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND ND	5. 5.
156-60-5	TRANS-1,2-DICHLOROETHENE		, ND ND	5.
109-99-9	TETRAHYDROFURAN		ND ND	5. 5.
75-69-4	TRICHLOROFLUOROMETHANE			5. 5.
76-13-1	FREON-TF		ИD	5. 5.
106-93-4	ETHYLENE DIBROMIDE		ND	5. 5.
123-91-1	1,4-DIOXANE		ND	5. 5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		570.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND .	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		56.	5.

DEMESOR ON

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: GCMS FILENAME: 6926V1 08/24/87 LEVEL: LOW MATRIX: SOIL 09/01/87 DATE PREPARED: 09/01/87 DATE ANALYZED: INSTRUMENT ID: 5101 STANDARD ID: **VOA397**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		11.	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES	1	110.	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1.4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION

UG/KG(PPB)

CHLORINATED HYDROCARBONS

VOA

300.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7 LEVEL: MEDIUM MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 VOA397 INSTRUMENT ID: STANDARD ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1, 2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		160.	50.
71-55-6	1,1,1-TRICHLOROETHANE		27.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		10.	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		870.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-4-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V7
LEVEL: MEDIUM MATRIX: SOIL
DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87
STANDARD ID: VOA397 INSTRUMENT ID: 5101

STANDARD ID: VOA397 INST SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		41.	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		460.	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1.4-DICHLOROBENZENE		ND	5.

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

15TB-4-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V8 MATRIX: SOIL MEDIUM LEVEL: 09/01/87 09/01/87 DATE ANALYZED: DATE PREPARED: 5101 INSTRUMENT ID: STANDARD ID: **VOA397**

SAMPLE AMOUNT: 1.0G:1ML,100UL:1ML,5

	COMPONIN	CONC	UG/G(PPM)	DETECTION LIMIT
CAS #	COMPOUND	CONC.	UG/G(FFM) ========	
74-87-3	CHLOROMETHANE		ND	50.
74-83-9	BROMOMETHANE		ND	50.
75-01-4	VINYL CHLORIDE		ND	50.
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	100.
67-64-1	ACETONE		ND	100.
107-02-8	ACROLEIN		ND	100.
107-13-1	ACRYLONITRILE		ND	100.
75-15-0	CARBON DISULFIDE		ND	10.
75-35-4	1,1-DICHLOROETHENE		ND	10.
75-34-3	1,1-DICHLOROETHANE		ND	10.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	10.
109-99-9	TETRAHYDROFURAN		ND	10.
75-69-4	TRICHLOROFLUOROMETHANE		ND	10.
76-13-1	FREON-TF		ND	10.
106-93-4	ETHYLENE DIBROMIDE		ND	10.
123-91-1	1,4-DIOXANE		ND	10.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	10.
67-66-3	CHLOROFORM		ND	10.
107-06-2	1,2-DICHLOROETHANE		ND	10.
78-93-3	2-BUTANONE		1800.	100.
71-55-6	1,1,1-TRICHLOROETHANE		38.	10.
16-23-5	CARBON TETRACHLORIDE		ND	10.
108-05-4	VINYL ACETATE		ND	50.
75-27-4	BROMODICHLOROMETHANE		ND	10.
79 -34- 5	1,1,2,2-TETRACHLOROETHANE	•	ND	10.
78-87-5	1,2-DICHLOROPROPANE		ND	10.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	10.
79-01-6	TRICHLOROETHENE		94.	10.
124-48-1	DIBROMOCHLOROMETHANE		ND	10.
79-00-5	1,1,2-TRICHLOROETHANE		ND	10.
71-43-2	BENZENE		ND	10.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	10.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	100.
75-25-2	BROMOFORM		ND	10.
119-78-6	2-HEXANONE		ND	50.
108-10-1	4-METHYL-2-PENTANONE		ND	50.
127-18-4	TETRACHLOROETHENE		ND	10.
108-88-3	TOLUENE		6300.	10.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V8
LEVEL: MEDIUM MATRIX: SOIL

DATE PREPARED: 09/01/87

STANDARD ID: VOA397

DATE ANALYZED: 09/01/87

INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,100UL:1ML,5

CAS #	COMPOUND	CONC: U	IG/G(PPM)	DETECTION LIMIT
**************************************	CHLOROBENZENE		ND	10.
108-90-7		•		
100-41-4	ETHYLBENZENE		180.	10.
100-42-5	STYRENE		ND	10.
95-47-6	TOTAL XYLENES		1300.	10.
108-41-8	M-CHLOROTOLUENE		ND	10.
95-50-1	1,2-DICHLOROBENZENE		ND	10.
541-73-1	1,3-DICHLOROBENZENE		ND	10.
106-46-7	1,4-DICHLOROBENZENE		ND	10.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE: 15TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

08/24/87 GCMS FILENAME: 6926V2 DATE RECEIVED: SOIL LEVEL: LOW MATRIX: 09/01/87 09/01/87 DATE ANALYZED: DATE PREPARED: STANDARD ID: **VOA397** INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ИD	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V2 LEVEL: LOW MATRIX: SOIL DATE ANALYZED: 09/01/87 DATE PREPARED: 09/01/87 VOA397 INSTRUMENT ID: 5101 STANDARD ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
22222222			nd ND	
108-90-7	CHLOROBENZENE			· · ·
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

17TB-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V3 SOIL LEVEL: LOW MATRIX: DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 INSTRUMENT ID: 5101 STANDARD ID: **VOA397**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		.ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ИD	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		36.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ИD	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

6926V3 GCMS FILENAME: DATE RECEIVED: 08/24/87 SOIL MATRIX: LOW LEVEL: 09/01/87 DATE ANALYZED: DATE PREPARED: 09/01/87 5101 STANDARD ID: **VOA397** INSTRUMENT ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION
22222222		:========		
108-90-7	CHLOROBENZENE .	•	ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1.4-DICHLOROBENZENE		ND	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

17TB-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION

CONCENTRATION

UG/KG(PPB)

1 NONE FOUND

VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: DATE RECEIVED: 08/24/87 6926V4 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 5101 STANDARD ID: VOA397 INSTRUMENT ID:

SAMPLE AMOUNT: 1.0G

	•			DETECTION
CAS #	COMPOUND	CONC:	UG/KG(PPB)	LIMIT
		=======		
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ИD	30.
75-00-3	CHLOROETHANE		ND	30.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		14.	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		/ 13.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	•		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		7.	5.
100 00 0			• •	_

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CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 08/24/87 GCMS FILENAME: 6926V4 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 09/01/87 DATE ANALYZED: 09/01/87 STANDARD ID: **VOA397** INSTRUMENT ID: 5101

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-5-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION
UG/KG(PPB)

1 1,3-DIOXOLANE

VOA

600.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 6926V11 08/24/87 DATE RECEIVED: SOIL MEDIUM MATRIX: LEVEL: 09/01/87 DATE PREPARED: 09/01/87 DATE ANALYZED: STANDARD ID: **VOA397** INSTRUMENT ID: 5101

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

				DETECTION
CAS #	COMPOUND	CONC:	UG/G(PPM)	LIMIT
		:222=222	========= ND	30.
74-87-3	CHLOROMETHANE	•	ИD	30.
74-83-9	BROMOMETHANE			30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND (50.
107-02-8	ACROLEIN		ND	
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ND	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		810.	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	·		ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	DIBROMOCHLOROMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYL ETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		840.	30.
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		ND	5.
T00-00-7	LODOLINE			

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: 17TB-7-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 6926V11 DATE RECEIVED: 08/24/87 LEVEL: MEDIUM MATRIX: SOIL 09/01/87 DATE PREPARED: 09/01/87 DATE ANALYZED: INSTRUMENT ID: 5101 STANDARD ID: VOA397

SAMPLE AMOUNT: 1.0G:1ML,200UL:1ML,5

CAS #	COMPOUND	CONC:	UG/G(PPM)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.

CLIENT:

WOODWARD-CLYDE

SITE:

DOUGLAS AIRCRAFT

SAMPLE:

17TB-7-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME

FRACTION

CONCENTRATION

UG/G(PPM)

1 NONE FOUND

VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

Woodward-Clyde Consultants



CHAIN OF CUSTODY RECORD

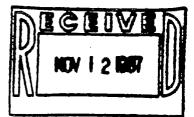
SHIPMENT NO .: 3 PAGE / OF Z

Sample Number Location Type of Sample Material Method		Type of	Type of Container		Type of Preservation Temp Chemical		Analysis Required®						
576-1-3	15	13	5211		MOD.		PONCE	TUB5	KE	NO	NE	COUT	*
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* Note - This does not constitute authorization to proceed with analysis

LA/OR-0183-421

November 10, 1987



WOODWARD-CLYDE 203 N. Golden Circle Drive Santa Ana, CA 92705

Attn: Allistair Callendar

JOB NO. 7592



ANALYTICAL CHEMIS

LABORATORY REPORT

Samples Received: Twenty-five (25) soil & four (4) water samples

Date Received: 10-29-87

Released for Analysis: 11-4-87

Purchase Order No: Proj: 8741863D-1000/Douglas Aircraft

The samples were analyzed as follows:

Samples Analyzed

<u>Analysis</u>

Results

MW-3-2-3 &

MW - 3 - 3 - 3

Volatile Organics

by EPA 8240

Data Sheets

Page 1 of 1

Michael Shelton

Senior Chemist

D.J. Northington, Ph.D. Technical Director

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

GCMS FILENAME: 7592V1 10/29/87 DATE RECEIVED: SOIL LOW MATRIX: LEVEL: 11/10/87 11/10/87 DATE ANALYZED: DATE PREPARED: 5100 VOA607 INSTRUMENT ID: STANDARD ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
222222222222 24 02 0		******	eezzzzzzz: ND	30.
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE		ND	30.
75-00-3	CHLOROETHANE		ND	50.
75-09-2	METHYLENE CHLORIDE		ND	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN	•	, ND	50.
107-13-1	ACRYLONITRILE			5.
75-15-0	CARBON DISULFIDE		ND	
75-35-4	1,1-DICHLOROETHENE		53.	5.
75-34-3	1,1-DICHLOROETHANE		98.	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	. 5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		70.	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ND	30.
75-27-4	BROMODICHLOROMETHANE		ND	5.
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE	•	ND	5.
79-01-6	TRICHLOROETHENE		ND	5.
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5.
71-43-2	BENZENE		ND	5.
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		ND	30,
127-18-4	TETRACHLOROETHENE		ND	5.
108-88-3	TOLUENE		590.	5.
T00-00-7	TODOLAL			

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

7592V1 GCMS FILENAME: 10/29/87 DATE RECEIVED: SOIL MATRIX: LOW LEVEL: 11/10/87 DATE ANALYZED: 11/10/87 DATE PREPARED: 5100 INSTRUMENT ID: STANDARD ID: **VOA607**

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
2252222222		=======================================		-
108-90-7	CHLOROBENZENE	•	ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE		ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1.2-DICHLOROBENZENE		ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-2-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/KG(PPB)

1 NONE FOUND VOA

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 GCMS FILENAME: 7592V2 LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 5100 STANDARD ID: **VOA607** INSTRUMENT ID:

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
74-87-3	CHLOROMETHANE		ND	30.
74-83-9	BROMOMETHANE		ND	30.
75-01-4	VINYL CHLORIDE	*	ND	30.
75-00-3	CHLOROETHANE		ND	30
75-09-2	METHYLENE CHLORIDE		ИD	50.
67-64-1	ACETONE		ND	50.
107-02-8	ACROLEIN		ND	50.
107-13-1	ACRYLONITRILE		ND	50.
75-15-0	CARBON DISULFIDE		ND	5.
75-35-4	1,1-DICHLOROETHENE		ДИ	5.
75-34-3	1,1-DICHLOROETHANE		ND	5.
156-60-5	TRANS-1,2-DICHLOROETHENE		ND	5.
109-99-9	TETRAHYDROFURAN		ND	5.
75-69-4	TRICHLOROFLUOROMETHANE		ND	5.
76-13-1	FREON-TF		ND	5.
106-93-4	ETHYLENE DIBROMIDE		ND	5.
123-91-1	1,4-DIOXANE		ND	5.
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE		ND	5.
67-66-3	CHLOROFORM		ND	5.
107-06-2	1,2-DICHLOROETHANE		ND	5.
78-93-3	2-BUTANONE		ND	50.
71-55-6	1,1,1-TRICHLOROETHANE		ND	5.
16-23-5	CARBON TETRACHLORIDE		ND	5.
108-05-4	VINYL ACETATE		ИD	30.
75-27-4	BROMODICHLOROMETHANE		ND	5。
79-34-5	1,1,2,2-TETRACHLOROETHANE		ND	5.
78-87-5	1,2-DICHLOROPROPANE		ND	5.
10061-02-6	TRANS-1,3-DICHLOROPROPENE		ND	5.
79-01-6	TRICHLOROETHENE		ND	5 ,
124-48-1	CHLORODIBROMOMETHANE		ND	5.
79-00-5	1,1,2-TRICHLOROETHANE		ND	5,
71-43-2	BENZENE		ND	5 .
10061-01-5	CIS-1,3-DICHLOROPROPENE		ND	5.
110-75-8	2-CHLOROETHYLVINYLETHER		ND	50.
75-25-2	BROMOFORM		ND	5.
119-78-6	2-HEXANONE		ND	30.
108-10-1	4-METHYL-2-PENTANONE		310.	30.
127-18-4	TETRACHLOROETHENE	•	ND	5.
108-88-3	TOLUENE		8.	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

ANALYSIS TYPE: EPA METHOD 8240 (624)

ORGANICS ANALYSIS DATA RESULTS

DATE RECEIVED: 10/29/87 7592V2 GCMS FILENAME: LEVEL: LOW MATRIX: SOIL DATE PREPARED: 11/10/87 DATE ANALYZED: 11/10/87 STANDARD ID: VOA607 INSTRUMENT ID: 5100

CAS #	COMPOUND	CONC:	UG/KG(PPB)	DETECTION LIMIT
108-90-7	CHLOROBENZENE		ND	5.
100-41-4	ETHYLBENZENE		ND	5.
100-42-5	STYRENE		ND	5.
95-47-6	TOTAL XYLENES		ND	5.
108-41-8	M-CHLOROTOLUENE	•	ND	5.
541-73-1	1,3-DICHLOROBENZENE		ND	5.
106-46-7	1,4-DICHLOROBENZENE		ND	5.
95-50-1	1,2-DICHLOROBENZENE	•	ND	5.

CLIENT: WOODWARD-CLYDE SITE: DOUGLAS AIRCRAFT

SAMPLE: MW-3-3-3

TENTATIVELY IDENTIFIED COMPOUNDS

COMPOUND NAME FRACTION CONCENTRATION UG/KG (PPB)

1 NONE FOUND VOA

Data Reporting Qualifiers

- Value If the result is a value greater than or equal to the Detection Limit (DL), the value is reported.
- ND Indicates that the compound was analyzed for but not detected. The minimum DL for the sample with the ND is reported based on necessary concentration or dilution actions.
- TR Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified DL but greater than zero.

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CHAIN OF CUSTODY RECORD DATE 10 1.29 87 PROJECT NAME:_ - 1000 PROJECT NO .: Type of Preservation Analysis Required* Type of Sample Type of Container Location Chemical Temp Material Method NONE Brass Tube DEED 50.1 CMS Has Vial Wetce Grab

Sample Number

MW-2-2-4

MW-3A

« 4-3

11 B

Received By Signature	Date
Printed Name	10/29/83 Time 4.201
Received By: #7592 Signature #7592 Printed Name WITA Low Company WITA	Date 10:2918 Time 1745
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* Note - This does not constitute authorization to proceed with analysis

LA OR-0183-421